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ABSTRACT

This 2-volume report assesses the context of social, demographic, economic, and technological changes in the light of educational data on 15- to 18-year-old students. The report suggests the need for a more responsive and flexible approach to classroom instruction, to the school as a community institution, and to the diversity of the learning needs of Canada's changing population. The study constructed profiles of the 15-to-18-year-old student, especially attending to gender, ethno-cultural origin, and socio-economic variables, and particularly to minorities, special needs, and at-risk students. The resulting report is intended to assist in designing policies and programs responsive to the needs of secondary school children. In the first volume, section 1 summarizes recent social, technological, demographic, and structural transformations in Ontario. Section 2 reviews research literature on exceptional students and youth at risk, within the framework of learning styles theory and of Bloom's conceptual framework of prevention, intervention, and transition. Section 3 consists of qualitative research on exceptional students and youth at risk, based on interviews with educators, parents, and students. Section 4 explores learning as a cultural and diverse process in relation to the themes that emerged from the research, and these are then applied to educational programming and policy development. Findings are summarized, and areas for further research are identified. In the second volume, part 1 presents socio-demographic profiles of youth based on macro databases, and part 2 presents analyses of micro or regional databases. A bibliography is included in the first volume. Thirty-one tables and 19 figures are appended to volume 2. (TM)

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The Young Adult Learner: Fifteen- to Eighteen-Year-Old Students in the Ontario English-Language School System

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Preface

The Policy Research Centre on Children, Youth and Families has prepared this report on contract to the Ontario Ministry of Education. The Centre's mandate is threefold: to develop a critical perspective on underlying policy issues; to stimulate, support and produce innovative research; and to foster partnerships and public awareness necessary for a strategic investment in children, youth and families. The Centre is an independent, non-profit institute funded by the Ministry of Community and Social Services in Ontario. It draws on the multiple perspectives of community agencies, corporations, foundations, governments, researchers, and advocacy organizations.

The issues surrounding education are key policy concerns, not only for the Centre and the Ministry of Education, but for many others invested in better educational outcomes for Ontarians. Insights for this report have been shaped and strengthened by many individuals who have volunteered their time and energy to the Centre. These include policy makers and researchers at the provincial and federal level, members and staff in Boards of Education across the province; principals, teachers, and students who discussed issues with us, members of our Research Council, and others. We acknowledge and appreciate their vital contributions to this report.

More directly, this project represents the combined efforts of research team members from many organizations across the province. While the names of the project team members and their responsibilities are listed below, special recognition goes to Mary Bunch, who kept a complex set of roles and responsibilities on track, as well as drafting and editing the report.

Executive Summary

Dramatic social, demographic, economic, technological, and other changes have placed increasing pressure on our educational systems over recent years. This report, commissioned by the Ontario Ministry of Education, assesses the context of these changes in light of educational and related profile data on 15 to 18 year old learners. In developing a perspective on the problems and opportunities which face us today, the findings of this report suggest the need for a more responsive and flexible approach to classroom instruction, to the school as a community institution with open boundaries, and to the diversity of learning needs, backgrounds, and expectations in our changing population.

This report is intended as a resource for both the Ontario Ministry of Education and the various boards of education within the province, to assist in the design of policies and programmes which respond to the unique social and psychological needs of secondary school students. The findings are interpreted within the context of learning styles theory and student profiles generated by statistical databases and literature reviews. The perspective is interdisciplinary.

This study constructs profiles of the 15 to 18 year old learner within the Ontario English educational system, grades 10 to graduation, by examining the available literature as well as a variety of quantitative databases, and qualitative interviews. Of particular concern are gender, ethno-cultural origin and socio-economic status variables and their relationship to young adult learners, particularly visible minorities, special needs groups, students at risk of dropping out and students who have dropped out and returned to school. In order to accomplish this task, the report is organized into five sections.

The first section of volume one summarizes social, technological, demographic, and structural transformations that have taken place in the province of Ontario, including increases in population as well as changes in family forms and youth cultures. Special interest is paid to the relationship between the school system and the variables of gender, socio-economic status and race/ethnicity. Following this, the literature on learning styles theory is reviewed. Learning styles theory is viewed in context of the major theories of human development.

Section two of this first volume provides reviews of Canadian and international literature on 'youth at risk' and 'exceptional students'. 'Youth at risk' include: dropouts; employed students, immigrant students', Native students. 'Exceptional students' include: students with physical and mental disabilities and gifted students. These reviews are set within the framework of learning styles theory and focus on the 15 to 18 year old learner, as well as the social and psychological factors internal and external to the school environment. Applications to education suggested in the literature are viewed through Bloom's conceptual framework of prevention, intervention and transition.

Section three consists of a qualitative research on current programme initiatives in Ontario schools serving youth at risk and exceptional students. Bloom's model (1991) of prevention, intervention and transition strategies provides a framework for qualitative interviews with educators, parents and students.

In the final section of volume one, a more unified vision of learning as a cultural and diverse process is explored in relation to themes that emerge from the research. The application of these to educational programming and policy development are then discussed. While no recommendations are made, options and strategies consistent with this vision are considered. Finally, a summary of research findings from the study and the gaps prevalent in the literature are identified, stressing areas in need of further study.

Volume one concludes with a bibliography of Canadian and international sources on the young adult learner.

Volume two consists of two parts. In part one, socio-demographic profiles of youth based on analyses of macro databases, including an Ontario/national comparison of this cohort are presented. These macro databases consist of: Statistic Canada's 1986 Census, 1986 General Social Survey Time Use Module, 1989 General Social Survey on Education and Work, as well as the 1989 Addiction Research Foundation Survey. Part two presents analyses of the micro or regional databases, including: The Transition of Native Youths to the Work World, Literacy of Youth in Care, Dropping Out As a Career Decision and Strategies for Prevention, Career Awareness and Knowledge of the Labour Market, A Longitudinal Study of High School and University Students and Survey of Science Students in the North.

I — INTRODUCTORY FRAMEWORK

In recent years, Ontario, along with the rest of the globe, has undergone dramatic social, demographic, economic, technological, and structural changes. All of these have placed enormous pressure on our educational system. In part, these changes have created a growing and diverse population of students with changing individual needs. More importantly, education as a critical instrument of government policy has been forced to respond to changing labour force demands, new advocacy pressures, changing family structures, new gender roles, more widely diverse populations, and a host of other changes.

In some ways, these changes are part of a longer evolution of educational policy and practice. As a relatively young country, Canada has undergone many socio-demographic changes. In early colonization years, the population was small, consisting of mainly isolated, rural and agricultural communities. The education system at the time was not centralized, and was the responsibility of the family or the local church (Anisef, 1985). As the country shifted to a more urban industrialized society, the education system was also transformed into a more standardized, uniform, state run institution. Goals were developed to socialize an increasingly culturally diverse and formerly rural population into a Western Christian industrial labour force. Literacy was seen as an answer to many social problems, and education became free and compulsory to age sixteen (Anisef, 1985). More vocational schools were introduced as life and work shifted from the home to the workplace, and families no longer sufficed in preparing their children for the new types of occupational roles being introduced (Inglehart, 1990). Changes occurring within the system were further affected by cyclic trends of progressivism and conservatism, as the political mood and economic situation of the province shifted (Anisef, 1985).

Today, as Western economies shift out of the industrial era into a global age of information and technology, the educational system must respond in turn. The effects of these changes on the family, youth culture, and the labour market suggest implications for education. Additional socio-demographic factors such as population shifts, ethno-cultural diversity, poverty and changing gender roles also have an impact on the education of children and youth. This is especially relevant at the secondary level, when youth are beginning to make choices regarding their future occupational roles.

This sense of rapid change and ensuing diversity offers important insights for the context of emerging educational policy. As we review this context, we are afforded an opportunity to explore the ways in which education today can support a stronger Ontario.

Changes in the Family

Since the beginning of the 1960s, changing domestic and labour market participation by men and women has reinforced the shift from life centred in the home to the workplace which started with industrialization. These more recent changes have drastically altered the structures of families and the style of family life. In addition, the amount of time spent by young people within the education system has changed the relationship of families to the state.

Many family stereotypes no longer apply. Prior to the 1960s, the family structure norm included children living with their two natural parents, with one parent, predominantly the mother, working in the home, and the father in the workplace. It is becoming increasingly common in double parent families to have both parents in the work force. These families are often blended after divorce and remarriage. In recent years there has been a significant increase in single parent families, the majority headed by women (Health and Welfare Canada, 1989). Norms linked to the maintenance of the heterosexual two parent family are weakening for a number of reasons, including the availability of social assistance and declining infant mortality rates (Inglehart, 1990). In the changing North American culture, it is increasingly acceptable to divorce, bear children out of wedlock, marry later and delay or desist from motherhood to pursue careers (Young, 1991).

Although this pattern is gaining acceptance, it is not always practical. For instance, the trend toward single, mother-headed families puts heavy economic pressure on women, resulting in the feminization of poverty. Moreover, the lack of time spent in the home by busy working parents may mean that children receive less direct supervision and attention from parents. These changes, and their effects on students, are not well understood.

While in early colonization times, families were solely responsible for the education and occupational guidance of their children, the school system has been taking on more and more of the child rearing responsibilities that were previously the domain of parents. In **Broken Promises**, Grubb and Lazersen (1982) describe how the blurring of the boundaries between the state and family are problematic. At an ideological level, the family remains the basic unit, but the state is expected to intervene and assume child rearing responsibility. This results in ambiguity and contradiction and allows for class and racial biases to be incorporated into the system. Schools, especially at the high school level, have tried to resolve various social problems by replacing family influences, socializing immigrants and rural migrants and teaching students respect for government and property. Educators justified developments within the schools such as streaming and ability grouping, and the separation of middle and lower class children, by referring to the differing child rearing abilities of parents. Not infrequently, a power struggle occurs between parents and education professionals. Grubb and Lazersen (1982) note that professionals in children's institutions derive power from the presumption of parental inadequacy. They suggest that it is necessary that professionals work with parents rather than alienating them.

Changes in Culture

Today's youth are growing up in a different world than that of their parents. Technology is changing rapidly. Communication systems, media, computers, fax machines and transportation bring the world to peoples' homes and people to other parts of the world. Economically, politically and socially, today's youth live in a global environment, and enjoy a relatively high standard of living. These changes result in a change in culture referred to by Inglehart (1990) as post-materialism. While traditional values and norms are accepted by older generations, a new orientation among youth is replacing the prevailing world view. There is a gradual shift from an emphasis on material comfort and physical security towards an emphasis on quality of life. Over the long term, there has been a decline in traditional religious orientation and conventional social and sexual mores; people tolerate more diversity, their differences seem less threatening. Younger people tend to be more permissive of homosexuality, divorce and single parenthood. They are more likely to believe that a woman doesn't need to have children to feel fulfilled, a reflection of the changing gender roles in society.

Changes in the Work Force

One of the primary functions of the secondary school system is the preparation of students for the transition from school to work. A current globalization of enterprise is restructuring the world economic order. The rules and meaning of work and economic productivity are changing. Technology is beginning to replace human labour, resulting in an employment growth that is sluggish in comparison to the growth of the Canadian work force (Paquette, 1992). This is further complicated by population factors arising from the baby boom. Canada now has the largest proportion of its population in the work force in its history, and this ratio is expected to increase (Health and Welfare Canada, 1989).

Paquette (1992) suggests that although the fastest growing employment categories are those which require strong academic and training specialties, these jobs account for only a small proportion of the workforce. The change from low skilled and clerical employment to jobs required in a high-tech society require skills that allow for a wide scope of individual judgment and creativity (Inglehart, 1991). Most Canadians are not getting the level of skills and training they need to compete in the global market. Our human resources are underdeveloped and underutilized, and opportunities for the unskilled are becoming scarcer. Learning must become a Canadian priority (The Minister of Supplies and Services Canada, 1991).

The current relationship of high school students and graduates to the labour market is described in **Job Futures: An Occupational Outlook for Ontario** (The Ministry of Employment and Immigration Canada, 1991). A large percentage, about 64 per cent of students, enter the labour force after full or partial completion of high school. Their first job after leaving school is most often in clerical work, manufacturing, or the service industry.

Population Shifts

Population changes in Ontario are affected by fertility rates, immigration and migration. Population shifts affect educational planning with regard to building, programming and staffing schools. Schools must be able to accommodate the fluctuating numbers of students and offer them curricula that are relevant to their experiences, learning needs and aspirations. Understanding the ethno-cultural changes in the population enables policy makers to train teachers and to design programmes that can accommodate the needs of the diverse student population.

According to **Charting Canada's Future** (Health and Welfare Canada, 1989), if fertility rates continue as they are expected to, the Canadian population will grow until the year 2026, then begin to decline. The Ontario population is predicted to grow at a rate slightly higher than the rest of the country, from 36 per cent in 1986 to 39 per cent by 2011. The number of school aged children decreased between 1961 and 1983 by 1.4 million, and will continue to decrease until 2031. The Canadian population is aging, heading toward a time when older people will outnumber the young.

Canada has a high rate of internal migration which is difficult to predict. This creates difficulties in planning education delivery systems. As reported in **Job Futures: An Occupational Outlook for Ontario**, almost one million Canadians changed provinces between 1981 and 1986, with 28 per cent moving to Ontario (Employment and Immigration Canada, 1991). Another complicating factor is that Canada has no standard educational system; students moving to Ontario from other provinces have been in different education systems and often have to adjust to Ontario's school organization and curriculum. If equality of educational opportunity is to be available to all, then regionally equivalent and equally distributed educational programmes are necessary (Young, 1991). However, regional differences, even within Ontario, may indicate differing student needs, which also must be reflected in programming. For instance, Metro Toronto has great ethnic diversity, whereas the north and southwest of the province have large Aboriginal populations (Barnhorst and Johnson, 1991).

The Canadian population would eventually disappear if not for immigration (Health and Welfare Canada, 1989). Ontario receives approximately half of Canada's immigrants, and about half of these settle in Metropolitan Toronto. In 1986, 40 per cent of new immigrants were under the age of twenty-five (Barnhorst and Johnson, 1991). Most immigrants are not from Western cultures. Between 1980 and 1989, 41 per cent of Ontario's immigrants were from Asia, 28 per cent from Europe, 5 per cent from the United States, 9 per cent from the West Indies, 11 per cent from South and Central America, and 5 per cent from Africa (Barnhorst and Johnson, 1991). These trends have strong implications for education, as the ethno-cultural background of students affect their experiences in the system.

Ethno-Cultural Diversity

In Ontario, 13 per cent of children and youth are of visible minority or Aboriginal backgrounds. Of these students, 22 per cent are Black, 16 per cent Indo-Pakistan, 20 per cent Aboriginal, 16 per cent Chinese, and the remaining from other backgrounds. Approximately 75 per cent of visible minority youth reside in Toronto and the surrounding area. Aboriginal youth reside mainly in the north and southwest of the province (64 per cent), with a considerable proportion (19 per cent) in Toronto (Barnhorst and Johnson, 1991).

With the exception of Asian students, who tend to perform at least as well as students from the dominant culture, visible minority youth face significant challenges in coping with the school system, often resulting in poor academic performance or their dropping out. Despite efforts made by school boards and the Ontario Ministry of Education to prevent discrimination and equalize opportunity for all youth, school policies, teacher attitudes and the organizational structure of schools do not encourage success among minority youth (Calabrese and Poe, 1990). They are more likely to be suspended, placed in special education classes (Calabrese and Poe, 1990), and streamed into general level, basic level and vocational tracks (Barnhorst and Johnson, 1991). These realities create a feeling of alienation from school, increasing the likelihood of negative behaviour such as poor attendance, cutting classes, and hostility towards school (Calabrese and Poe, 1990).

Research completed on the reasons why minority students experience differential treatment with regard to special class placement and streaming shows that testing fails to recognize semantic differences between cultural groups, focusing on symbols and information most familiar to the dominant culture. Many testing methods amount to viewing intelligence in terms of English fluency (Frasier, 1991). So far, attempts to develop culturally appropriate tests have failed due to the wide variation in accuracy (Winzer, 1990; Gartner and Lipsky, 1987).

For minority group students, recognizing the advantages of students from the dominant culture may lead to conflict between their minority status and their desire to excel. They may be faced with explicit and implicit accusations that by performing well in school they are buying into the dominant culture and 'acting White' (George, 1986 cited in Cooley, Cornell and Lee, 1991).

Many schools make an effort to recognize ethnic diversity, mainly by providing Heritage Language Programmes where there is a demand (Barnhorst and Johnson, 1991). It seems that students from ethnic minorities will continue to be at risk unless the system as a whole is actively working to accommodate their differences and needs. Calabrese and Poe (1991) recommend policies incorporating racially and culturally diverse curricula and course materials, training teachers to understand, appreciate and respond to various ethnic groups within the contexts of their cultures, implementing hiring policies that represent the diverse population, and operating schools based on goals and philosophies that encourage students and faculty to work as a harmonious and pluralistic society.

Socio-economic Status

In Ontario, 10.8% of families are officially classified as poor; nearly 35% of these families are led by single women (Barnhorst and Johnson, 1991). The negative effect of poverty on students is manifested in a number of ways. Teacher discrimination, bias in testing, and home environment affect the achievement of students.

Children from families on social assistance in Ontario have been shown to be significantly more likely to be identified as performing poorly in school than other students (Ryerse, 1990). Ryerse suggests a number of reasons for these differences in achievement. In poor families, shortages of food or the consumption of less expensive, low nutritional foods lead to hunger and possible developmental delays in children. Hungry students have difficulty concentrating, are more irritable, and are more frequently absent due to illness. In addition, economic stress creates environments that are not conducive to learning. At home, students from low income backgrounds may have less access to private space for homework, are less likely to own computers, and have parents with lower educational levels and lower educational aspirations for their children. In school, these students experience differential treatment and lower teacher expectations. Middle class students receive more attention and praise, whereas low income students receive more criticism and punishment, and have less supportive contact with teachers, who label them potential failures. These characteristics are so well entrenched by high school, it is unlikely that these students will catch up. They may develop low self concept and low self-esteem, and their motivation to learn may be hampered. Consequently, they are streamed into basic level and vocational courses, setting them on a vocational path that is unlikely to improve their financial circumstances (Ryerse, 1990).

Despite progressive public policies which opened access to educational institutions, the reality of the home and school environments has not encouraged success for lower income students. Streaming reinforces existing social divisions and the distribution of wealth changes minimally (Ryerse, 1990; Barnhorst and Johnson, 1991).

Gender

While both male and female students face obstacles in achieving an appropriate education, female students encounter relatively more conflicts in achievement than do males. Rodenstein, Pfleger and Colangelo (1977) point out that girls are expected to be selfless, nurturing, dependent, household oriented, feminine, and secondary to boys while at the same time being active, assertive, career oriented and successful in male dominated areas. The negative effects of sex role stereotyping take particular effect in high school as a result of the shift in secondary education from factual knowledge to interpretive knowledge. Many girls do not trust their interpretive powers because they differ from the masculine viewpoints of texts, which exclude females' experiences (Maker, 1986).

The attitudes of some educators hinder girls further. Teachers have been found to discourage risk-taking and suppress creativity in girls and encourage these qualities in boys (Lares, 1988). Girls' chances of receiving high ability ratings increases if they conform to cultural expectations, showing signs of high altruism, idealism, and selflessness (Whalen and Csikszentmihalyi, 1989). In male dominated areas such as science and mathematics, boys tend to get higher praise for the same performance level; by high school, fewer girls participate in math and science classes. Conversely males receive less support for their participation in the arts and aesthetic subjects, and are less likely to enrol in them (Lares, 1988). This gender specific decline in course enrolment is restrictive to both male and female high school students.

It is encouraging to note that as society changes, these gender differences begin to diminish. Although women are not yet receiving equivalent training in the sciences, the gender gap is being addressed by informed educational policy. This is consistent with changing opportunities, social roles and demands in the workplace (Bulcock, Whitt and Beebe, 1991).

Conclusion

Changes in Canadian society and culture, along with socio-demographic factors, suggest certain directions for changes in educational policy and programming. With the transformation of the economic, political and social environment, youth need to be prepared for entrance into a labour market that is part of the global economy. In addition, education must understand and accommodate the different learning needs of students arising from racial diversity, income differences and the changing roles of men, women and families in modern society. While this has been a concern of education professionals, efforts to equalize opportunities have not yet been realized.

The unique learning needs of young adult learners in the 15-18 year old cohort requires a detailed understanding of the dominant theories of human development as they relate to cognitive, personality, moral and social development. Consideration of such theories provides a backdrop for examining the concept of individual learning style and the relevance of this concept in providing effective instruction to young adult learners. We now move to a detailed consideration of individual learning styles in the next section.

Development and Learning of the 15 to 18 Year Old Learner

Learning in the adolescent population, with particular reference to the 15 to 18 year old cohort, may be examined from two perspectives. The first is that of dominant theories of human development. The second is that of the emergent field of individual learning style.

Human development and learning have been studied over many years. This study includes major areas such as cognitive development, personality development, moral development, and social development. Theoretical perspectives in these areas have focused on how the normal population develops. This approach has permitted the educator to set the development of any group of students, or of any individual student, against the broad backdrop of what is known of the development of the total population. Those readers who find it unnecessary to review theories of human development may want to skip to the section on Learning Style Theories.

Study of individual learning style without comparison to the larger population is a recent innovation. A basic principle of learning styles theories is that while the population follows a general pattern of development, each individual develops and learns in a unique manner. It is the understanding of uniqueness in learning which will result in the most effective instruction at the individual level.

Ontario teachers tend to be exposed during teacher preparation to generalized theories of human cognitive, personality, moral, and social development. Exposure to concepts of individual learning style is minimal. An informal survey of Ontario Faculties of Education conducted for this review indicated that present teacher education programmes placed much more emphasis on well-established theories of development applicable to the total population than on themes focused on the individual. Responses from Brock, Ottawa, Queen's, Toronto, Western Ontario, and York Faculties of Education made evident that teacher preparation programmes focus on theorists such as Piaget, Erikson, and Kohlberg. Theorists who hold alternate views of the developmental patterns of the total population, are mentioned differentially from faculty to faculty. Individual learning style is touched upon, but lightly, in the programmes of the majority of respondents.

The ensuing discussions are designed to set a framework with two dimensions. The first is structured with overviews of cognitive development, personality development with a focus on identity formation, moral development, and social development. This discussion reviews in general terms the basics of what Ontario teachers can be expected to understand with regard to development of young adults. The second dimension is more specifically structured. It deals in some detail with individual learning style theory and related instruments, implementation thrusts for learning style, support for the concept of learning styles, and impact on secondary schools.

Cognitive Development

Teacher understanding of cognitive development in North America tends to flow from a Piagetian perspective. Piaget considered cognitive or intellectual development to consist of four stages:

1. Sensorimotor - birth to two years.
2. Preoperational - two to seven years.
3. Concrete operational - seven to eleven years.
4. Formal operational - eleven years to adult.

The final, formal operational stage in Piagetian theory has two levels. The first is a transitional period running roughly from 11 to 14 years and the second a period of consolidation, begins at 14 to 15 years. McKinney and Vogel (1987, pp. 22-23) view formal operational thinking as including "at least four overlapping key acquisitions" which differentiate that stage from earlier concrete-operational thought.

1. Ability to reason about abstract propositions disconnected from concrete images or objects. The younger child requires concrete stimuli.
2. Ability to "consider reality as a subset of what is possible, using propositional statements to generate possibilities that have not been encountered in reality and using hypothetical-deductive reasoning." The younger child uses inductive reasoning based on extension of concrete experiences.
3. Ability to "evaluate the relationship between two relationships." Concrete operational thinkers can classify the relationships simultaneously on two dimensions, but cannot classify the possible outcomes of the relationships.
4. Ability to "use a more fully integrated and coordinated logic than the concrete operational thinker." The adolescent can systematically generate all possible combinations of a set of variables, understands that to evaluate the effects of one variable experimentally, it is necessary to isolate that variable by holding all others constant, and can coordinate the two types of reversibility characteristic of concrete operations.

At approximately eleven years of age and extending through adolescence, the individual begins to think logically, employing abstractions. This permits the average individual "to work out all logical possibilities without having to determine which ones actually occur in the real world, ...conduct a combinatorial analysis of possibilities,...do propositional thinking,...(and) generalize from propositions based on one kind of content" (Gage and Berliner, 1988, pp. 116-117).

Despite the apparently dichotomous relationships between stages suggested by Piaget's stage theory, the shift from concrete operational to formal operational thinking is actually a gradual process. Younger and older adolescents may exhibit a mix of mature and relatively immature thought. McKinney and Vogel (1987) refer to study findings wherein less than 60 per cent of college students coped successfully with some formal operational tasks. Thinking and reasoning ability in later adolescence appear less subject to variability than is the case in earlier adolescence. However, intra-individual variability is not uncommon. Additionally, there is evidence of differential cognitive ability depending on area of functioning. Differing levels of formal operational skill may be found between areas such as academic and social contexts.

Though the average teacher is familiar with the basics of Piagetian theory, there is less familiarity with the implications of the theory for school achievement. Furth (1970), whom Piaget referred to as his best interpreter, refers to the problem writers encounter in applying the theory to the classroom. "The book I had originally planned would discuss educational implications of Piaget's theory. However, the book turned into a lengthy and detailed probing of Piaget's theory of knowledge; this was not the kind of material that offered teachers a suitable introduction to practical applications" (p. vii). This problem of turning theory into practice continues, particularly at the adolescent level. There is less familiarity, as well, with more recent views of cognitive learning.

Adolescents display a variety of logical, abstract, and rational strategies meaning that moral points can be generalized and symbolic meanings, metaphors, and similes can be understood. However, as Renner, Stafford, Lawson, McKinnon, Friot, and Kellog (1976) demonstrated, the level of adolescent cognitive development and the demands of curricula may not match. In one Renner et al. investigation, curriculum materials assumed formal operational thought abilities attained by only a minority of the 588 junior and senior high school students involved. There was a definite relationship between subject success and degree of attainment of formal operational cognitive ability. Sprinthall and Collins (1984) suggest that "Renner's results imply that the majority of students do not understand what a class is all about, what they are supposed to do on their assignments, or what the concepts mean" and "that if pupils are not helped to develop their potential for formal thought, they will remain rather like concrete robots, dutifully repeating phrases on call at the behest of teachers" (pp. 112-113). Though Renner at al. suggest that the majority of grade 12 students have not achieved strong, consistent formal operational thought, there is evidence that cognitive growth may be stimulated during adolescence. Barratt (1975) assessed the learning abilities of 12, 13, and 14 year olds. Training was given in two phases: a. problems which required students to consider only parts of problem elements at one time; and b. problems which required consideration of all parts at once. Significant change in cognitive approach to problem solving compared to non-trained students resulted. Improvement was most marked for 14 year old students.

The curriculum does not match the level of formal operational thought reached by students.In addition, evidence exists that as students get older, a more accurate view of their individual skills can be obtained. In a test of the age differentiation hypothesis Dye and Very (1965) gave standard mental abilities tests to grade 9, 11, and college students. They found that a clearer view of the abilities of both older groups emerged than of the grade 9 group. Within all groups they found that it was easier to identify specific areas of strength and weakness for males than for females.

Piagetian theory provides a baseline for the understanding of cognitive development of adolescents for educators. This understanding is not altogether firm as the majority of teacher preparation programmes present the theory in outline and do not deal with areas such as curricula-level formal operational thought match or mismatch, level of formal operational thought attainment in the individual adolescent, intra-individual differences, effect of training, early and later adolescence differences, and male-female differences.

Identity Formation

The development of personality is initiated in infancy and continues through old age. It encompasses and integrates all human traits, abilities, and motives, temperament, cognitive styles, attitudes, beliefs, emotional responses, opinions, morals, and character (Gage and Berliner, 1988, p. 142). How personality is formed, the stages of that formation, and central aspects of these stages are theoretical issues. Theoretical explanations of personality development describe the progressive unfolding of behaviour.

Erikson's formulation of personality development altered the traditional view of that development overall and of adolescence fundamentally. Eriksonian theory diverged from earlier Freudian theory in setting out a sequential system of emotional growth rather than an explanatory system founded on deficits within the individual. The Eriksonian view is more readily accepted by educators who find it more compatible with their child-centred, developmental schemas.

Erikson hypothesized milestones of psychosocial growth leading to personality formulation. Each milestone, or stage, involves a specific two-sided, bipolar, crisis. The manner in which the individual resolves each crisis as they interact with an ever-widening social community determines the degree of one's "healthy growth." Healthy growth may be thought of as "mastery of the environment, unity of functioning, and the ability to perceive the world and ourselves accurately."

Self-actualization, in Eriksonian terms, requires the resolution of a series of related basic crises at times of heightened vulnerability. Erikson labelled his concept of psychosocial growth proceeding through a series of necessary stages or epigenesis. Eight stages, each with its particular crisis, composes the birth to old age sequence of personality development (see Table 1.1). Each stage is viewed as critical to the development of a healthy versus an unhealthy development.

Table 1.1 Eriksonian Stages and Associated Bipolar Crises

Age of Occurrence	**Bipolar Crisis**
Birth to 12 months	Basic trust versus mistrust
2 to 3 years	Autonomy versus shame/doubt
4 to 6 years	Initiative versus guilt
6 to 12 years	Accomplishment versus inferiority
13 to 18 years	**Identity versus role confusion**
Young adulthood	Intimacy versus isolation
Adulthood	Generativity versus stagnation
Old Age	Integrity versus despair

The crisis of adolescence in Eriksonian theory is identity achievement versus identity or role confusion. Sprinthall and Collins (1984) describe adolescence as a period of major discontinuity in growth. Doubtless, it is a period when the learning of past stages must be continued through adolescence and into adulthood. The crisis of identity formation threatens this continuity. This is the period when we build the foundation for how we see ourselves and how others see us. A strong, firm, balanced foundation results in a strong, firm, balanced identity. Lack of such a foundation results in identity confusion in which a sense of personal alienation interferes with the formation of a strong sense of self.

Identity achievement does not proceed at the same pace for all adolescents. Whereas it may be true that all pass through the same series of stages from birth to adulthood, it does not necessarily follow that all are at the same place in one stage at the same age. Some early adolescents still grapple with the accomplishment or mastery, versus inferiority stage which precedes identity versus role confusion. Some are further along in achieving identity resolution than are others. Though it may be acceptable for various purposes to couch discussion in terms of the average psychosocial growth of teenagers, it would be a mistake in judgement to view all adolescents of an age as being at the same stage of development and capable of successfully facing the same challenges. This statement deals not only with groups which may be termed special in one way or another, but with the broad average of teenagers as well. The concept of individual learning style, to be discussed later, addresses this point of individually based differences.

Chisholm (1980) examined junior high students by dividing them into two groups, knowledgeable individuals as social isolates and social leaders. The social isolate group was characterized as non-interactive types who tended to eat alone, to be alone in school hallways, to decline to interact with peers before or after class, to lack friends, and to be passive in class. Social leaders, termed interactives, were the opposite with high degrees of social activity. Analysis of results of a personality test measuring individual resolution of the first six Eriksonian stages indicated that those defined as non-interactives had not been as successful as interactives in resolving the bipolar crises of most stages. They were found to function at a less complex level than were the interactive group. Sprinthall and Collins (1984) pointed out that such results are not unexpected. Individuals differ in development and resolve psychosocial issues of identity development at individual rates. Some lag behind in moral judgement and social competence, remain relatively egocentric, and are focused on their personal interpretations of social interactions. Such individuals are not emotionally disturbed in any clinical sense, but their emotional growth has not matched the developmental sequence described by Erikson. On the basis of their interpretation of research such as Chisholm's, Sprinthall and Collins recommended that programmes to promote psychosocial development be part of the regular secondary school programmes.

Though perceivable differences may exist in individual adolescents, or groups of adolescents, research suggests that major aspects of identity formation are continuous over the teen years. There is an ebb and flow in salient aspects of self-concept (Dusek and Flaherty, 1981) such as sense of adjustment, sense of achievement and leadership ability, senses of sociability, and sense of masculinity/femininity. Adolescents tend to find the same qualities of self to be important over time. However, they may rate themselves differently on the qualities at different stages of identity formation. The personal crises they face create changes in self-concept. This idea of a continually changing series of mini-crises differs from Erikson's concept of a single major crisis of identity achievement-identity confusion. It does not challenge the fact, however, that some adolescents experience identity issues of major consequence.

Marcia (1980) has elaborated on Erikson's bipolar identity crisis formulation for students in late adolescence. He advanced the concept of four statuses: achievement, diffusion, moratorium, and foreclosure. Each of these is defined in terms of a decision-making or crisis period and of a personal investment or commitment. An identity achiever is one who has experienced a crisis and gone on to commit to occupational or ideological goals. An adolescent identified as in identity diffusion has not committed to any goal whether or not a crisis event has been experienced. Those experiencing a crisis period but not having made a goal commitment are considered to be in the moratorium stage. Lastly, there is the foreclosure status in which commitment to goals has been made, not on the basis of crisis experience, but on that of parental expectation.

Identity status is commonly measured by the Identity Status Interview (Marcia, 1966). Variations of this measure, as well as a number of original measures, have been developed in the interim. McKinney and Vogel (1987, p. 17) note that Marcia (1980) has reviewed the research and provided the following correlates of identity status:

1 Anxiety (Moratoriums are most anxious and Foreclosures least)
2 Self-esteem (Identity Achievers and Moratoriums have higher self-esteem than Identity Diffusions and Foreclosures; the latter two are also more likely to change their stated view about themselves in response to feedback whether positive or negative).
3 Authoritarianism (Foreclosures seem higher)
4 Moral reasoning (Identity Achievers and Moratoriums, typically score highest. That is, they score at the post-conventional level whereas the other two statuses are more likely to be at the conventional and preconventional level.)
5 Autonomy (Identity Achievers and Moratoriums score highest).
6 Cognitive styles (no general IQ differences across the four statuses; however, when stressed, Identity Achievers do best and Foreclosures do worst on a concept attainment task).

There is little doubt that the individual's self-concept undergoes changes during adolescence. These changes may not be in the form of bipolar opposites as suggested by Erikson and others, but may move more gradually through a series of minor crises as suggested by theorists such as Dusek and Flaherty. Definite factors can be identified in this period of greater or lesser individual discontinuity. It is a period of turbulence, of crises however viewed, and of personal struggle - a struggle to balance all aspects of self through a period of significant physical, sexual, and hormonal changes.

Moral Development

Kohlberg is the basic authority on moral development in the majority of teacher preparation programmes. The essentials of Kohlberg's theory are familiar to the majority of teachers. Under this view, derived from verbal responses of children and adolescents to hypothetical moral dilemmas, moral growth takes the form of a specific series of stages. This series is considered independent of culture and country. Moral development moves in a fixed set of stages from simple to complex. The determinant limiting or contributing factor is individual interaction with the environment. Degree and type of interaction determines perception of ethics and justice.

Kohlberg's six stage theory of the growth of moral thought is summarized in Table 1.2. Each stage is defined according to the dominant thought mode of respondents to moral dilemmas.

Table 1.2 Kohlberg's Levels of Moral Development

Levels of Moral Development	Stages of Moral Development	
A. Preconventional level. The child responds to cultural labels of good and bad, but looks mainly at the physical effects of action (pleasure or pain) or at the physical power of the rule givers.	1. The punishment-obedience orientation. The individual tries to avoid punishment and defers to power in its own right.	2. The instrumental-relativist orientation. Right is what satisfies one's own needs, or sometimes others'. Human relations, as in the marketplace, are strictly a matter of reciprocity (You scratch my back and I'll scratch yours). This is a practical morality.
B. Conventional level. Meeting expectations of family, group, or nation is valuable, regardless of immediate consequences. Loyalty to and support of authority, and of the social order are valued beyond mere conformity.	3. The interpersonal - concordance orientation. Good behaviour is what pleases or helps others. Much conformity to stereotypes of "appropriate" behaviour. Intentions are important. One earns approval by being "nice."	4. Authority and social order - maintaining orientation. Right behaviour consists of doing one's duty, maintaining the given social order for its own sake.

Early adolescence (to approximately 15 years) is characterized by an almost equal balance between instrumental-relativist orientation (centred on one's own needs) and interpersonal-concordance orientation (centred on pleasing others). Minor percentages of respondents indicated stage one and stage four characteristics. The average early adolescent responds to moral situations in terms of personal material gain or of approval from others. This 'other-directed' thinking of stage three respondents indicates the need to rely on the views of others in the environment. The few elementary age students who show 'other-directed' thinking focus on parental approval. The early adolescent exhibiting interpersonal-concordance orientation differs in developing a focus on peer approval.

Young adolescents lack a stable reference group and do not base judgments on stable self-directed and democratic values. Moral judgement is subject to superficial concerns focused on self need and peer approval. A rapidly growing aspect of reasoning at this age is the ability to understand the social perspective of those beyond the self. The individual can place himself/herself in the position of another and respond emotionally as that other might.

Reasoning at stage three level represents a marked positive change from the simpler lower levels of moral thought. Those adolescents exhibiting such development have moved beyond their peers who are characterized by instrumental-relativist, materialistic, self-concerned moral positioning. These characteristics are considered more appropriate to pre-adolescents and indicate immaturity in adolescents.

The stage three interpersonal-concordance orientation, peer approval driven characteristic, dominates the moral position of the 16 to 18 year old. The need to conform with the perceived set of socially dominant peers in the moral arena overrides the amount of remaining self-concern in the population. However, materialistic self-interest remains the dominant mode of thought for a proportion of this age population.

Emerging at this age is some evidence of an authority and social order-maintaining orientation. Adolescents at this stage govern themselves with respect for authority and the support of existing social structure. Unlike the majority of individuals at this age who tend to permit the formation of socially powerful cliques which rule in non-democratic fashion, and are concerned with personal social popularity, the stage four group accepts laws and rules formed by society over time as their guiding principles. Moral thought for this group is characterized by internal control, planning, analyzing, and reviewing. Aspects of preceding stages are incorporated, but new levels of thought focused on societal laws, produce major changes in moral decision-making. Few adolescents to age 18 exhibit moral thought of the next, social-contract legalistic orientation, stage.

The classification of an individual adolescent as at stage two, three, or four does not carry with it the condition that moral decision-making is characterized solely by thought at that stage. Individuals vary. Whereas the thought patterns may reflect more qualities of one stage, the thought qualities of preceding and subsequent stages may be present to lesser degrees. Research has shown that proportions of the 13 to 14, and 16 to 18 year old populations exhibit anything from a mix of stages one and two thinking to a mix of stages three and four thinking. The major differences between the age groups may be summarized as follows. The younger group is characterized by a mix of stages two and three thinking with approximately one in four more characterized by lower levels and one in five being solidly at stage three or in a mix of stages three and four. Almost half of the 16 to 18 year old group is characterized by stage three thinking with one in four by a mix of stages three and four, and three in ten by significant degrees of stage one or two thought. Simple categorization of any individual or any age as being at one level is unwarranted. Development is an amalgam marked by trends and variations within a general movement to increased moral sophistication with increased age.

Social Development

The adolescent is in fundamental ways a product of the family environment. The years prior to adolescence have much to do with setting behaviour patterns, attitudes, and values. Families have been classified as authoritarian, permissive, and authoritative, based on the approach of parents to their children (Sprinthall and Collins, 1984). Authoritarian parents set strict rules and regulations for behaviour, strive to prevent unacceptable behaviour, and punish children for unacceptable behaviour. Permissive parents appeal to reason and attempt persuasion. Strict rules are rare as is punishment. Qualities of both of these types may be found in authoritative families. Expectations exist and firm rules are set, but parents attempt to use reason in having children respond to expectations and abide by rules. Actual behaviour of the child determines whether the response will be reward or punishment.

The effect of parental style on adolescent behaviour is well-documented. Baumrind (1967) found that children of authoritative parents tended to be self-reliant, self-controlled, explorative, and content. Submissiveness, dependence, low sense of responsibility and need for achievement characterized children of authoritarian parents. Permissive parents had children who exhibited early independence, but also lower sense of responsibility and need for achievement. Other researchers, such as Elder (1963) found similar patterns of adolescent behaviour dependent on family style.

Whereas parental influence continues to be a dynamic in the social development of adolescents, the paramount social determinant during adolescence is the individual's set of peers. Friendships, or their lack, become a driving force. It is at this age that the quality of friendship moves from the shared activity basis of earlier years to one of emotional interdependence. The move from shared activity to interpersonal commitment is more marked for female adolescents relative to males. Loyalty, trustworthiness, and respect for confidence are the qualities sought out for establishing friendship. Once friendship is granted, total commitment to the other is made. If the other person proves untrustworthy, degree of personal upset is immense. Underlying this bonding of adolescence is cognitive change. Increasingly complex concepts of self in relation to others are formed. Relationships are accepted as being based on shared, but also independent, points of view. There is new ability to understand the point of view of the other. Mutuality and sharing are developed.

Formation of closely knit groups is a common characteristic of adolescence. If one is given a place in a group, there is a feeling of acceptance and security. Research has shown that the bases of group formation are difficult to isolate. Patterns of group formation, in terms of dynamics such as dominance and privilege are apparent. Certain qualities of physical attractiveness, intelligence, behaviour, and achievement are characteristic of groups, but no one quality is sufficient for acceptance. Nevertheless, once formed, particularly in early adolescence, groups are difficult to penetrate. The common position of theorists is that identity formation is furthered by group membership as is the ability to play adult roles.

A major dynamic of adolescence is peer influence. As noted, earlier peers provide a sense of belonging, or a sense of rejection if acceptance is withheld. Additionally, research points to the fact that degree of successful adult adjustment may be related to the quality of earlier peer relationships. Peer influence relates to two salient aspects of social development. One is known as informational influence in which peers provide knowledge of behavioural patterns, attitudes, and values and how these relate to different situations. Normative influence refers to social pressure to behave as peers behave. Closely related to these are the processes of social comparison and social conformity wherein individuals find a yardstick of comparison to guide their behaviour and motivation to conform to the actions, attitudes, and beliefs of others.

Summary of Developmental Theories

These brief summaries of selected, developmental theories are old grist in the teacher's mill. They are presented here simply to review the average secondary school teachers general understanding of the development of secondary school students in Ontario. The import of the review is for teacher education and individual learning style.

Teacher education in this province focuses on basic theoretical formulation in development. Whereas lecture/seminar instruction may salt theory with practical examples, typical teacher preparation programmes depend on practicum experience to bring the theories to life through first-hand interactions with students. The instructional implications of such individual interactions tend not to be well dealt with on a planned basis. Even when individual learning style is part of a teacher preparation programmes, it tends to be a minor part. Integration of practicum setting experiences with theoretical lecture/seminar and broadly conceived discussion is a hit-and-miss affair dependent on individual professors and the interests of individual students. It is easy to adopt a critical position and castigate preparation programmes for failing to fully address all areas of development in learning. However, teacher education programmes in Ontario consist of the equivalent of five full university courses. Some might consider it impossible to turn the amount of attention desired to the study of development, given the competition from other, equally important areas of study. A great amount of information must fit into the five courses and an in-depth examination of topics is challenging to achieve.

The study of individual learning style and its implications and application in the practicum setting must grow from an initial appreciation of broad theoretical formulations focused on developmental areas. If an appreciation of the individual and of special groups is to be acquired, it must be acquired against a backdrop of understanding of average development across age groups. Ensuing discussion of individual learning style would possess much less meaning unless preceded by appreciation of the broad scope of average development.

Learning Styles

Introduction

The concept of individual learning style and the relevance of this concept to more effective instruction is regarded as "perhaps the most vital development in American education today" (DeBello, 1989, p.1). Such a view is not new. Bracht (1970) advanced the similar premise that "One of the most promising movements in contemporary education is the attention being given to student learning styles." Huff, Snider, and Stephenson (1986), of the Ontario Secondary School Teachers' Federation, state "To ignore teaching and learning styles is to ignore the choice to make the educational milieu as positive and as successful as possible" (p. 5).

Whereas these views may be accurate, the actual relevance of learning style theory and related instrumentation for educational instruction is not clear. Though various learning style theories fall primarily or partially under one of the developmental areas no concerted attempt has been made in the literature to detail and define any relationships. The recency of the concept of individual learning style, its roots reaching back to the 1960's, has not permitted sufficient reflection, study, and intervention practice to reveal its pragmatic value. Rather the emergence of the concept stimulated the development of a number of alternate views of what learning style is, and the creation of a confusing, and often conflicting, number of definitions. As DeBello (1989) noted in his comparison of learning style models, "There are nearly as many definitions of learning styles as there are theorists" (p. 1). This point has been echoed by other writers (Curry, 1990; Dunn, DeBello, Brennan, Krimsky, and Murrain, 1981). The problem of definition was a primary concern of the Learning Styles Task Force of the National Association of Secondary School Principals (NASSP). The definition put forth by this group is accepted by many educators (Keefe and Monk, 1986).

> Learning styles is the characteristic cognitive, affective, and psychological behaviours that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment.

This may be considered an overview or eclectic definition encompassing as it does the primary developmental areas of the individual. It is apparent through this definition that learning style theory is the individually focused understanding of the general statements of cognitive development, identity formation, moral development, and social development. In broad terms it fits within the educational framework of individual differences (Good and Stipek, 1984). Existence of such an overview definition has not interfered with the development of alternate definitions tied to particular theoretical formulations. Whatever the definitional confusion, educators and theorists would agree with Curry (1990), a Canadian authority, that "the primary objective for the study and application of learning styles has been to improve the immediate and long-term results of instruction." Curry goes on to posit that use of learning styles can have impact on teaching and learning in the secondary school in four areas:

1 Curricular design
2 Instructional methods
3 Assessment methods
4 Student guidance

Theoretical Postulations and Related Instruments

Exactly what constitutes learning style is articulated differently by different theorists (Curry, 1990; DeBello, 1989; Dembo, 1988; Doyle and Rutherford, 1984; Dunn, DeBello, Brennan, Krimsky, and Murrain, 1981; Semple, 1982). This fact contributes to the apparent complexity of the field, the confusion in discerning effect on learners, the design of instruments meant to measure learning style, and the rational preparation of educators for the inclusion of learning style considerations in their instruction. A first step to obtaining a clear view of learning style is to obtain a basic knowledge of contemporary theoretical formulations. A number of these are discussed below. Selection was based primarily on theoretical positions supported by learning style measurement instruments developed specifically for secondary school students and determined by Curry (1990) to possess evidence of validity and reliability.

Dunn and Dunn (1979) view learning style as multidimensional. Though the dimensions involved have been considered by many to include the sensory channels only, the actual compass of the

Dunns' formulation is broader. Dunn, Dunn, and Price (1981) describe learning style as being based on:

1. Environmental factors: sound, light, temperature, need for formal or informal design;
2. Emotional factors: motivation, persistence, responsibility, need for structure or options;
3. Sociological factors: self, pair, peer, team, adult, varied; and,
4. Physical factors: perceptual strengths, need for intake, time of day or night energy levels, and need for mobility preferences.

To these four DeBello (1989) adds psychological factors including global/analytic, hemisphericity, and impulsive/reflective dimensions noting that research since the earlier Dunn, Dunn, and Price statement "has confirmed correlations between being strongly global and needing low light, sound when learning, an informal design, and intake, and between being strongly analytical and needing bright light, quiet while learning, a formal design, and no intake" (p. 5).

Within this conceptualization, learning style is considered a set of personal characteristics biologically and developmentally determined. Learners react with greater or lesser preference for factors within the five general areas noted. This individual fashion of reacting to stimuli renders "the same teaching method effective for some and ineffective for others" (Dunn, Beaudry, and Klavas, 1989, p. 50). These researchers further note that the theory is supported by "the significant differences among diverse cultures" (p. 118), cautioning, that "despite cultural differences, however, within each culture, socioeconomic strata, and classroom, there are as many with in-group differences as between-group differences. Indeed, each family includes parents and offspring with styles that differ" (p. 118, authors' emphases).

The model proposed by Dunn and Dunn is seen as utilizing a diagnostic-prescriptive approach which permits the identification of individual learning style preferences. Such identification is considered to lead educators to more positively responsive and effective instruction. The view of learning style put forth by Dunn and Dunn is the one most familiar to classroom educators and the one with the greatest degree of face validity to this group.

The Dunn, Dunn, and Price Learning Style Inventory (LSI) (Dunn, Dunn, and Price, 1989) was designed to provide a diagnosis of learning style and a prescription for individual student learning from grade three through secondary school. Some 100 true/false items probe environmental factors, emotional factors, sociological factors, physical factors, and psychological factors through self-report. Testing time is 40 minutes. Internal reliability has been estimated at .76 with a range for separate scales of .55 to .88. Test-retest reliability on the Time-of-Day Preference subscale for mid-elementary grade learners is strong (r.=.93). Predictive validity studies, including a number focused on secondary school students, indicate promising strength. Content validity analysis indicates that items tap appropriate areas (Curry, 1990).

Biggs hypothesizes the essential aspect of learning style to be motivation. He conceptualizes three fundamental motive-strategy dimensions. These are:

1. Surface: instrumental versus reproducing
2. Deep: intrinsic versus meaning

3 Achieving: achievement versus organizing.

These three, measurable dimensions deal both with the learner's motive for a particular approach to learning and the selection of particular strategies to support personal learning effectiveness. Biggs considers his model to offer "a parsimonious and theoretically coherent model for conceptualizing the more important ways in which students may feel about, and behave towards, their study" (Biggs, 1979).

Biggs developed the Learning Process Questionnaire (LPQ) (Biggs, 1988c) to investigate motive for learning and subsequent selection of strategies. The three motive-strategy dimensions (surface, deep, achieving) are investigated in self-report format through 42 items. Responses are given on a five point Likert scale. Testing time is 15 minutes. The author considers the LPQ to examine both motive for adopting a particular approach to learning and selection of supporting learning strategies. Internal reliability with 16 year olds is modest (r=.63 with a range of .46 to .78). Test-retest reliability is similarly modest for the same age group (r=.65 with a range of .60 to .70). Construct validity is supported through appropriate correlations with self-rated performance and school performance and with internal local control (Curry, 1990).

Entwhistle (1981) developed a model of learning styles drawing on the theoretical work of Marton and Saljo (1976) and Pask (1976) in the areas of holistic and serialist learning. Entwhistle suggested that it was possible "to define approaches to styles of learning in ways which are directly related to the experience of students" (Curry, 1990, p. 15). Dimensions employed to define approaches to learning are:

1 Meaning orientation
2 Reproducing orientation
3 Achieving orientation
4 Holistic orientation.

Ramsden (1983), an Entwhistle collaborator, suggested that the study of learning styles along these dimensions would permit definition of "approaches to learning and styles of learning in ways which are directly related to the experience of students that will inform teachers about students' study that they will be in a better position to organize their teaching to ensure that students learn effectively" (Curry, 1990, p. 41).

The Approaches to Study Inventory (ASI) (Entwhistle, 1981) represents an attempt "to operationalize concepts developed by Marton and Saljo (1976) and Pask (1976) about holistic and serialist learning" (Curry, 1990). Meaning orientation, reproducing orientation, achieving orientation, and holistic orientation form scales tested by a total of 64 items using a five point Likert scale format. Completion of the ASI takes 15 minutes. Internal reliability with secondary school students is adequate (.79) with somewhat lesser strength in test-retest reliability over three weeks (.72). Construct validity has been explored with good results. Predictive validity with college level students indicated modest findings. Less strength was found in a predictive validity study with high school students (Curry, 1990).

Hunt (1979), an Ontario-based theorist, developed the Conceptual Level model of learning styles. DeBello (1989) summarizes the model as "a description of students in terms of their need for structure" (p. 21). The Conceptual Level model treats two dimensions:

1 Conceptual complexity.
2 Need for structure.

Within conceptual complexity are three levels: a) low conceptual level wherein learners are impulsive and do not tolerate frustration well. Such learners require considerable structure in their learning settings; b) mid-conceptual level learners are conforming, dependent on rules and authority and think categorically. Need for guiding structure exists though such learners may be exposed to a limited number of choices; c) higher conceptual learners assert themselves, are independent, and employ questioning behaviour. Alternative approaches to learning, rather than structured approaches, are appropriate for these learners. A useful comparison of Hunt's philosophical guide posts and those considered characteristic of learning styles models is offered by Huff, Snider, and Stephenson (1986).

Hunt's Paragraph Completion Method (PCM) (Hunt, Butler, Noy, and Rosser, 1978) employs a sentence completion approach in a self-report format and takes 15 minutes to respond. The six sentence stems, comprising the test items, explore response to rules, criticism, parents, lack of agreement from others, uncertainty, and being ordered to do something. Scores relate to level of conceptual complexity, interpersonal maturity, and self-other understanding. Test-retest reliability with grades 6 to 11 students over a one year period is .50. Interrater reliability with students of varied ages across a number of studies had a median of .86. Construct validity correlating the PCM with integrative complexity, ego identity, and anxiety for grade 12 females was promising (Curry, 1990).

An amalgamated model of learning style was conceived by the National Learning Styles Task Force of the NASSP. The overview definition presented earlier reflects the eclectic tone of the NASSP effort.

The NASSP model includes the modality preference, prescriptive orientation of Dunn and Dunn, the leading perceptual modality stress of Reinert (1976), the information processing position of Letteri (1980), and the field-dependent, field-independent theory of Witkin (1971). Basic to the conception of a model which encompasses diverse theoretical positions, is the belief that a widely inclusive profile of learning style dimensions is of value. DeBello (1989) applauded the pragmatic nature of the model and regarded the broad reach of its conceptual base as an "advancement" in an untidy field of study.

The NASSP Learning Style Profile (LSP) (Keefe and Monk, 1989) is comprised of 24 independent subscales designed to provide information on the higher order factors of cognitive skill, perceptual responses, study, and instructional responses. Some 126 items each require the student to choose one of three to five possible responses in an untimed format. Three internal reliability studies with sizeable n's of secondary school students produced an average alpha of .59. Test-retest studies over 10 and 30 day periods with secondary school students yielded average correlations of .62 and .48 respectively. Curry (1990) noted that most scales were supported at the instrument development stage by "strong factor scores," but noted also that "some scales have no construct validity data presented" (p. 49).

McCarthy (1980) developed the 4 MAT System, an approach to learning styles derived from Kolb's (1983) premise that all people sense and feel, observe, and think, experiment and act. The base of McCarthy's approach is the belief that learners constantly vary between working on an abstract conceptual level and the concrete experiential level during learning.

The 4 MAT System takes the form of a four-step model. Each step describes a type of learner.

1 Innovatives: curious, aware, perceptive
2 Analytics: critical, fact seeking, philosophizing
3 Common Sense: practical, hands on, oriented to the present
4 Dynamics: adaptive, inventive, risk-taking, enthusiastic

McCarthy enclosed these learner types within the left brain/right brain differentiated function position that the left hemisphere is associated with verbal, field independent types of activity, whereas the right hemisphere is associated with visual/spatial, field dependent types of activity.

This theoretical postulation emerges in practice as a spiral concept of full circle training. The learner is motivated by a structured activity designed to activate right hemisphere processes (sensing, feeling activity for Innovative learners). The activity is then examined in detail to formulate a concept (investigative, intellectual activity for Analytic learners). Thirdly, practice with the concept, designed to stimulate left hemispheric activity, takes place (hands on, practical, personalized for Common Sense learners). The final step, oriented to the right hemisphere, involves development of alternative solutions and their application to a variety of real situations (inventive, adaptive, action oriented for Dynamic learners). Huff, Snider, and Stephenson (1986), writing in the first of several Ontario Secondary School Teachers' Federation publications on learning styles, offer the analysis that the 4 MAT System "is a cyclical model which integrates four learner types into a structure of learning which resembles the natural learning progression-from the Why? to the What? the How? and then finally to the If?" (p. 40).

In summary, it is evident from the above discussion that different researchers approach learning style in different but, at points, overlapping manners. Indeed, when it comes to the design of instrumentation, pragmatic positions embracing a variety of supporting and conflicting theoretical concepts have been taken. The NASSP Learning Style Profile is a splendid example of the pragmatic bias of many practising educators. A variety of theoretical positions have been combined to produce an instrument covering a wide range of learning style aspects with readily recognizable implications for instruction. It follows the path of eclecticism. In Ontario, the Ontario Secondary School Teachers' Federation has embraced McCarthy's 4 MAT System in its publications. A number of Ontario secondary schools have piloted work with the 4 MAT System. The 4 MAT System was described above, because of its interest to Ontario secondary school educators even though there is no diagnostic instrument associated with it. In other North American jurisdictions, a variety of theoretical postulations have been translated to practice. The concepts of Dunn and Dunn that learning style is based on environmental, emotional, sociological, and physical factors appear to be most widely accepted as a whole or partial approach to attending to learning styles in instruction.

In the same way, test instruments which contain items readily connected in specific fashion to instruction as widely defined, are viewed as acceptable. Instruments not readily associated with instructional decision-making are rejected or, if their use is mandated, used with less than full confidence and effort. For these pragmatic reasons, as well as for reasons of relatively acceptable technical strength, the Dunn, Dunn, and Price Learning Style Inventory and the NASSP Learning Style Profile have gained more popularity among educators than have other test instruments. Teachers are able to perceive more readily how using these would lead directly to teacher control and manipulation of the instructional situation to the benefit of the secondary age student.

Matching Learning Styles

Dunn and Dunn (1979) were among the first to argue that teachers should know the learning styles of students and that instructional or teaching styles should match student learning styles. As described previously, Dunn and Dunn advocated an understanding of learning style based on an understanding of the environmental conditions of learning. They considered that "any teacher-regardless of teaching style, and as long as the (environmental) phenomena are understood, and the teacher is willing to permit some flexibility" (p. 243) can adjust instructional style to the perceived learning style of the student. Others have argued or assumed that teachers can identify learner styles under the variety of theoretical approaches reviewed earlier. Teachers then can alter their teaching styles and the manner in which resources are used as required. A variety of instruments have been devised to assist teachers in the identification of salient aspects of learning style.

Hyman and Rosoff (1984) held that advocates of matching view the process of aligning teaching and learning styles as a straight forward matter. They described a four-step paradigm for the accomplishment of the task as fundamental to this position:

1 examine the student's individual learning style
2 understand it and classify it according to several large categories
3 match it with a teaching style of an available teacher or, if no available teacher has the appropriate style, then request that a teacher adjust his/her teaching style to match the student's learning style
4 teach teachers to do steps (1), (2), and (3) in their pre-service and in-service training programmes.

Dunn and Dunn (1979) and Joyce (1981) support various points in this paradigm; they emphasize the soundness of the concept, and consider it practical.

Acceptance of this straightforward procedure is questioned by a number of surveyors of the concept. Hyman and Rosoff (1984) were concerned that the paradigm is overly simplistic. In addition to definitional problems related to various theories of learning style, two central gaps emerge for consideration. The first is the total focus on the dyad of teacher instructional style-student learning style. Hyman and Rosoff argued that the matching task must include consideration of subject matter above all. It is the teacher's understanding of subject matter to be taught/learned which is the controlling agent in matching. Secondly, the authors deplore the implication of unilateral decision-making by the teacher. For the matching process to succeed, both student and teacher must be involved in decision-making.

Doyle and Rutherford (1984) also expressed concern about the simplistic view of matching. Whereas they accept the compelling logic that learners are different from each other, and that if instruction and differences were aligned, instruction would be more successful, they find a number of practical and empirical questions outstanding. At the practical level, they query the preparedness of the teacher to identify learner style, given the multiplicity of possibilities. They also question the ability of the teacher to ferret through the complex diversity of possible elements of learning style and decide which to pursue. Finally, they are concerned with the task of devising the number of alternate instructional techniques which may be called for in adequate matching. On the empirical level, Doyle and Rutherford echo the reservations of others on whether matching would make any real difference to achievement.

Direct Instruction

Hyman and Rosoff (1984) argued that the learner must be an active partner in creating an instructional environment based on an understanding of learning styles. Their argument accepts the process of the teacher adapting instructional method to learner style, but they want the student to be aware of what is planned and to cooperate in the process. One way to elicit the cooperation of the participant in maximizing beneficial effect of learning style is to provide direct instruction or direct training in learning styles. According to Weinstein and Mayer (1986),

> In recent years attention has been focused on the role of the learner as an active participant in the teaching-learning act. In particular, this view suggests that the effects of teaching depend partly on what the learner knows, such as the learner's prior knowledge, and what the learner thinks about during learning, such as the learner's active cognitive processing (p. 315).

In effect, the suggestion is that teacher instruction can be directed towards assisting students to develop learning strategies which will enhance their learning. The learner will take personal control of his/her learning with resultant changes in attitudes towards learning and heightened self-concept. To some degree, but simplistically so, the concept of direct instruction in using learning style to advantage is similar to the concept of teaching study skills. Curry (1990) listed a variety of specific skills which are amenable to direct training with adolescents. These include self-motivation, time management, and study skills such as: self assessment/evaluation, setting realistic self-standards, planning, self-monitoring, self-correction, self-reward, goal setting, deriving positive expectations for success, managing stress, learning to effectively communicate feelings and needs; and cognitive skills such as: reciprocal teaching, cooperative learning, specific elaboration, rehearsal strategies, organizational strategies, comprehension, reflection, and focusing. Research studies support the concept that learners can be trained to increase skills considered to have an effect on their learning.

Cecil and Paul (1978) explored whether preferred modes of thinking and learning could be modified through indirect and direct training. A group of 68 graduate students were given direct training in right hemisphere functioning. A second group, composed of 200 gifted and talented high school students, was exposed to a variety of learning styles and experiences. A shift in hemisphericity towards the right hemisphere occurred for graduate students. In the case of high school students, a more integrated learning style promoting cerebral complementarity resulted.

In a Canadian study, Wong and Jones (1982) worked with learning disabled adolescents to investigate the hypothesis that insufficient metacomprehension is one cause of reading comprehension problems. A group of 120 eighth and ninth graders with learning disabilities and normally achieving sixth graders was selected. Half were assigned randomly to self-questioning training. As part of the training, they learned to monitor their understanding of important textual units. Results indicate that training increased the learning disabled adolescents' awareness of textual units and the formulation of sound questions involving those units. Their comprehension performance improved as well. Similar effects were not found for the sixth graders. Wong and Jones concluded that the findings emphasize the inactive nature of the reading of the learning disabled adolescents and the active nature of that of the normally achieving sixth graders.

Weinstein and Mayer (1986) investigated "techniques that a learner can be taught to use during learning" (p. 315). They explored basic school tasks such as the learning of lists and complex school tasks such as prose comprehension. In their view, and the views of a number of other researchers, it is apparent that learning strategies can be taught to learners. On balance, however, matching instructional approach to learner style has received far more attention in the literature and in practice than has direct instruction. Educators appear to seize more readily and aggressively on the one than on the other.

Support for Learning Styles

In **The Adolescent Experience**, King (1986) offered the following conclusion on a study of over 44,000 Ontario high school students:

> Perhaps, for educators, the major outcome of (this) study is a greater understanding of the need for young people to be treated as individuals...This means a willingness on the part of educators, in and out of classes, to recognize and accept the differences between young people. (p. 142)

This quote opened a discussion of learning styles in **The Research Record**, a York Region Board of Education newsletter (January, 1988). It points to the widely held belief among educators and others that attention to individual learning styles will result in a better quality of education for many.

Proponents of learning style theory and practice hold that students of all ages will benefit from instruction which takes learning style into account. Elfan and Worden (1988), Ontario teacher-researchers, listed benefits "claimed for creating environments and offering teaching that takes into account students' differing learning styles" as:

- increased achievement;
- less frustration or 'easier' learning;
- high retention of what is learned;
- improved attitudes towards school, teachers, and learning;
- reduction of classroom discipline problems;
- reduction in truancy;
- fuller use of differentiated capabilities of the brain's two hemispheres and of the three evolutionary 'layers' of the brain (reptilian, limbic, and neocortex);

- better accommodation of the differences that are associated with gender and culture;
- better accommodation of students' different needs for physical and intellectual structure in their learning activities;
- better accommodation of preferences for learning from abstract or concrete, sequential or random experiences; and,
- high student self-esteem. (p.1)

Support for such claims is found by advocates in theoretical postulations, testimonials based on personal experience, and research. Theoretical positions have been outlined. These may be regarded as generic in that they deal with learners of all ages. Testimonial support covers all ages as well. The experience from which it springs, however, may be divided by the age groups and grades with which it is gained. At the secondary level, typical testimonial statements have been given by a variety of teachers and administrators.

Noyes (1988), a teacher of English in Connecticut, with specific reference to a grade 9 English class, noted that similar results were found for two grade 10 English classes. Noyes is convinced of the value of attention to learning style. He attended a Learning Styles Institute where he was introduced to the Learning Styles Inventories (LSI) mentioned previously in this report. He administered the LSI to his classes and implemented instructional programmes based on the results. At the beginning of the school year, the students were characterized by low motivation, minimum effort, and minimum output. Low grades were commonplace. Noyes witnessed a change in attitudes and the emergence of confidence. Speaking of a particular student, Noyes wrote,

> I firmly believe that C.R.'s results, and those of many similar students in class, support the research findings on learning style. I also believe that many L.D. students do not really belong in that category. It is likely that once they become aware of their individual learning styles and know how to capitalize on them, they, too, will realize that they are capable of more than they previously have demonstrated and will experience success as C.R. did. (p.5)

Reabe (1988), a resource teacher in the PLUS programme (Progress with Learning Styles) of an Indiana high school, describes what she considers an innovative, tutorial programme. Counsellors, teachers, and the PLUS teacher refer students to the programme on the basis of needs and/or failing results. Reabe states that 61 per cent of students enrolled in the PLUS programme had improved grades. She notes a number of mini-testimonials from students and parents. Her article concludes, "Teaching has never been as challenging or as rewarding. I cope with 38 different teachers, 25 students, and about 20 different subjects each day. It is difficult to produce the many tactual, kinesthetic materials they require, but I cannot stop. The difference learning styles has made to their grades-and their lives-makes it all worthwhile" (p.5).

Harp (1988), a high school principal in Texas, introduced a learning styles programme to his staff and asked for volunteers to participate. A number of volunteers initially expressed doubt with regard to the applicability of learning styles concepts to high school students or to particular subjects. Harp found that he and several teachers felt more confident when handling problems and making assignments as a result of viewing situations involving conflict of styles. In the classes of his volunteer participants, discipline problems declined, achievement rose, and students showed delight in learning.

Testimonial support for the implementation of innovative teaching approaches is replete among those who have given learning style-based instruction serious attention. Such support cannot be taken as having more than face validity, no matter how persuasive. Alternate explanations for perceived effect must be considered. A halo effect, in which change is perceived but is not present, or in which change is short-term due to the novelty of an approach, occurs in various situations. Factors unrelated to the new instructional approach may be the agents of change. These can include a wide range of events both within and outside the educational environment. Change in student attitude or achievement may be more related to change in teachers from situation to situation than from change in attention to learning styles. While the possibility of actual effect of instruction oriented to differences in learning style cannot be discounted, alternate explanations cannot be excluded. As an Ontario Ministry of Education (1987) handbook for teachers of students identified as having learning disabilities reports, "Modality preference (in learning style) may be more of a function of how a student has been taught or has learned in the past than of how he or she learns most effectively" (p. 9).

Empirical research supporting or questioning theoretical postulations or innovative instructional approaches is considered by many as the acid test of both theories and of new methodologies. A variety of research studies have focused on aspects of learning style, with the majority involving young students and relatively few involving 15 to 18 year olds. Disagreement exists among experts with regard to the conclusiveness of research. Lembke (1985), who undertook an extensive review of "**The dynamics of learning styles as a viable teaching paradigm**," has little doubt of the efficacy of instruction oriented to learning style. She states, "When students are taught through their preferred learning styles, academic achievement increases" (p. 52). She noted that studies document that academic achievement improved when selected elements of learning style were matched with instruction. Among the elements quoted by Lembke are mobility or no mobility, field dependence/global or field independence/analytical, bright or dim illumination, right or left brain, high or low noise, introversion or extroversion, formal or informal design, social climate, small or large groups, high or low competition, preferred sensory modes, teacher's learning style, and time of day. This section of her review concludes with "the preponderance of evidence seemed to support the learning style paradigm:when instruction was consonant with learning styles, academic achievement was increased" (p. 59). Lembke is supported by the earlier work of Smith and Renzulli (1984) who state: "Research has shown that learning style matching can and does have a positive impact on student achievement, and/or motivation." They go on to support those who offer testimonial appreciation of orienting on learning styles. "This finding confirms what many experienced teachers have long believed - that students learn best when the style as well as the pace of instruction is varied within the classroom" (p. 49).

Curry (1990), an Ottawa-based researcher, is less sanguine. In **Learning Styles in Secondary Schools: A Review of Instruments and Implications for their Use in Secondary Schools**, she concluded "The learning style field offers tantalizing possibilities" (p. 17). However, in the body of the review, Curry emphasized that,

> Some learning style theorists have conducted repeated small studies which tend to find supporting evidence for their own conceptualizations. In general, however, these studies have not been designed to facilitate the emergence of disconfirming evidence;they are vulnerable to 'halo' and participation effects, and they involve relatively small, selective samples (p.4).

Though cautiously positive with regard to effect of instruction oriented to learning style, Curry offered the following critique of supportive studies at large.

- Many studies have been conducted by Ph.D. students under the direction of a faculty member with a vested interest in substantiating a particular learning style conceptualization.
- A recurrent design problem is the potential for statistical regression which biases interpretation of results when comparison groups were selected on the basis of extreme scores.
- Few of these studies estimate the reactive effects of pretesting for learning style or identify how such testing may sensitize students to experimental instructional conditions.
- Students may also be reacting to the experimental arrangements instead of the experimental variable (Hawthorne effect).

These external threats to validity are ignored in the research designs presently used in learning style research. (pp. 13-14).

Doyle and Rutherford (1984), at an earlier date, were similarly reluctant to unreservedly endorse a positive effect. They concluded in a review of "classroom research on matching learning and teaching styles" that:

> There is little reason to expect that one dimension of learners, such as style, will account for a large amount of variance in achievement. Moreover, programmes that increase classroom complexity for teachers and students must be examined carefully for unintended effects on the quality of instruction. Until the popular rhetoric of matching learning and teaching styles is informed more thoroughly by the findings of classroom research, the wise practitioner should proceed with caution (p. 24).

Dembo (1988) iterated this view. Citing aptitude by treatment interaction research, he left no doubt of his position. "There is not much support of the idea that matching instructional methods to different learning styles increases achievement" (p. 74).

It is obvious that some authorities offer lukewarm support at the most, for the efficacy of matching instructional style to learning style. The following summaries indicate the type of research which has been done with adolescents giving support to strongly held beliefs that the concepts of learning style have been proven effective.

Della Valle (1984) examined relationships among the need to move while learning, the environment in which instruction occurs, and the effect of both on word-pair recognition scores. The grade 7 students were placed in settings which were congruent with their diagnosed preference. Achievement scores increased for both mobility and environment. Della Valle concluded that both mobility and passivity are strengths when considered positively in instruction.

Hodges (1985) studied grade 7 and 8 students in a remedial mathematics class. Preference for formal or informal environmental design was the interest variable. When matched to their preferred environment, students achieved significantly higher scores and more positive attitudes to learning.

Murrain used the Dunn, Dunn, and Price Learning Style Inventory to determine the temperature preference of grade 7 students. Subject performance on a word recognition task was assessed in two settings; one congruent with temperature preference and one incongruent. Higher scores were achieved in temperature congruent settings.

White (1982) chose 80 grade 7 middle class junior high students to study the relationship between learning style and instructional method. Half of the subjects scored in the lower third of the persistence and responsibility subscales of the Learning Style Inventory and half in the upper third. Subjects were assigned randomly to a teacher-directed or to a self-directed class. Persistent and responsible students scored more highly on the conformance subscale of the California Psychological Inventory. They showed conforming behaviour whereas the less persistent and responsible group did not learn through conformity.

Marcus (1979) compared above average, average and below average ability groupings in grade 7 social studies classes to determine the existence of differences in learning styles. Data derived from administration of the Learning Style Inventory revealed differences among groups for emotional, environmental, sociological, and physical preferences.

DeBello (1985) studied the preferences of grade 8 students for peer learning, learning with an adult, or learning alone. Subjects were assigned randomly to writing strategies which matched or did not match learning style preferences. Better attitudes toward the writing task were found for students matched to congruent strategies. Achievement scores were higher as well.

Shea (1983) studied preference in environmental design among grade 9 students. Two groups obtaining extremely different scores for environmental design preference were assigned randomly to informal and formal environments to be tested for reading comprehension. Significant increases in mean reading scores were found when actual environmental design matched tested preference in design.

Shade (1983) studied grade 9 students to determine whether differences existed between students matched to school preferred information processing approaches and students who were not matched. Results indicated that students who were matched to a school-oriented learning style achieved higher grades or scores on achievement tests.

Bolocofsky (1980) used grade 10 students to examine the relationship of field dependence to the motivational effect of a competitive classroom environment. Scores on reading comprehension were obtained for settings offering competition or noncompetition. Scores of field dependent subjects increased significantly in a competitive environment. Field independent subjects evidenced minor change only.

Tannenbaum (1982) randomly assigned grade 10, 11, and 12 students evaluated as field dependent or field independent to instructional approaches. A deductive sequence with convergent questioning or an inductive approach with divergent questioning were featured. Field dependent students matched to a complementary inductive approach and field independent students matched to a complementary deductive approach, achieved better than when mismatched.

Tannenbaum (1982) matched high school students clearly differing in field dependence/independence to two versions of a nutrition lesson. The versions differed in degree of structure provided. A positive effect for matching field dependence/independence with degree of structure was found.

Copenhaver (1979) investigated consistency of learning style in grade 10 students in mathematics and English classes. Styles were consistent across subjects, but inconsistency over time was found. Copenhaver theorized that students did not see a need for changing learning styles with subjects and did not know when or how to change style with change in subjects.

Cafferty (1980) matched or mismatched all sophomores and juniors in a selected high school to teacher learning style. Findings indicated that grade point average increased as consonance between student and teacher style increased, and decreased as mismatch increased.

Raines (1976) worked with junior college students to determine if differences between teaching and learning styles contributed to failure in mathematics. A relationship was found between instructor style in terms of lecture and discussion and the groups achieving highest scores.

Charlton (1980) matched learning styles of biology students to instructional environments. Styles were determined through use of the Myers-Briggs Type Indicator. He found matching to have a positive effect on student performance, with particular reference to students not oriented to science.

Onyejiaku (1982) studied retention and transfer of math skills among 13 to 15 year old Nigerian students with analytic or non-analytic learning styles under discovery or expository instruction. Analytic students scored higher on a math test under expository instruction than did non-analytic students. No such interaction was found for discovery instruction.

Dunn, Cavanaugh, David, Eberle, and Zenhausen (1982) investigated the existence of relationships between elements of learning style and hemispheric preference. Grade 9 through 12 biology students were tested on the **Learning Style Inventory** and Zenhausen's **Differential Hemispheric Activation Test**. Results indicated that students with hemispheric preference differences have different environmental and organizational needs in the classroom. They also have differing motivational and personality characteristics.

Douglass (1979) assigned high school students who had been identified as field independent or field dependent by the Group Embedded Figures Test, to learning situations in which inductive and deductive resources were used to teach biology. Achievement increased when learning style and instructional resources were matched.

Steele (1986) examined the learning styles of high school students in a school using alternative curricula. He found that preferred intuitive or sensing learning styles, as determined through use of the Myers-Briggs Type Indicator, were related to practices used by the students in their learning.

Kroon (1981) studied auditory, visual, and tactile response preferences of secondary industrial arts students and instructional style. Achievement increased when instruction was introduced matching the learning style of the student and other response preferences were attended to in reinforcing style.

Lynch (1981) focused on grade 11 and 12 students with histories of chronic truancy. Time of day preference was matched or mismatched over two years with a specific set of assignments. Frequency of truancy was introduced into the analysis. Truancy declined when time of day preference was matched.

It is obvious that the personal experiences of educators and the research quoted is supportive of a positive effect when attention is paid to learning styles. Equally obvious is the fact that research at the secondary level has been unfocused and sparse. Whereas a body of researchers and educators find sufficient evidence in testimony and research to encourage the implementation of learning style concepts at the high school level, a second body of researchers and educators find the evidence insufficient and suspect.

Age Differences

Available research does not differentiate in any clear fashion between the 15 to 18 year old student group and the immediately younger aged group. Few studies have been done on the investigation of age differences. Indeed, Carbo, Dunn, and Dunn (1986) in **Teaching Students to Read Through Their Individual Learning Styles**, do not differentiate their discussion on the basis of age; the discussion addresses students of all ages Keefe (1988) and colleagues in **Profiling and Utilizing Learning Style**, a publication of the National Association of Secondary School Principals, similarly do not deal with age differences. Publications on learning style practice across various subjects by the Ontario Secondary School Teachers' Federation apply the same approach without regard to age level. Price, Dunn, and Dunn (1976, 1977), in the early stages of work on the Learning Styles Inventory, noted some differential preferences for learning through tactile or kinesthetic modalities and for auditory modalities between males and females with increases in age. Other than such minimal glimpses into age differences, learning style research is silent. Certainly, the stage by stage development of learning characteristics found in the theoretical work of Piaget, Erikson, Kohlberg, and others is not a characteristic of present understanding of learning style. It is not known if a stage model will, or will not fit learning style.

Impact on Secondary Schools

Dunn and Griggs (1988) in **Learning Styles: Quiet Revolution in American Secondary Schools** offer a series of statements by secondary school personnel on the use of learning style concepts. All of the statements declare the implementation of such concepts to be valid, efficacious, and feasible. Most make a point of emphasizing that leadership must come from administration and that administration and teaching staff must share a commitment to learning styles-based instruction.

Curry (1990) advanced the analysis that "use of learning styles can have impact on teaching and learning in secondary schools in four areas:(1) curriculum design; (2) instructional methods; (3) assessment methods; (4) student guidance" (p. 1). Each area is addressed briefly here. Extended discussion focused on implementation will be found in resources such as those provided by Dunn and Griggs (1988), Keefe (1988), and Carbo, Dunn, and Dunn (1986). The Ontario Secondary School Teachers' Federation has produced an excellent examination of the value of learning styles (Huff, Snider, and Stephenson, 1986), as well as a series of resource documents for implementation of learning styles concepts in selected subject areas (Anderson, undated; Arthur, 1987; Brumwell, Glinski, Piche, and Walsh, 1987; Hammar and Thompson, undated; Stewart, 1987).

Curriculum Design

Exponents of learning style propose that curricula can be taught most effectively when attention is paid to individual learning style. In practice, this means that a variety of materials focused on a topic should be available. Units should be addressed through complementary resources, a range of teaching and learning resources, flexible timetable, and differential pace of instruction. Curry (1990) noted the availability of some curricula specifically designed to take into account differences among learners. Among these are **Individually Guided Education** (I.G.E.) by Popkewitz, Tabachnick, and Wehlage (1982) and Wang's (1980) **Adaptive Learning Environment Model** (A.L.E.M.). While these resources, along with those published by the Ontario Secondary School Teachers' Federation are not the sole answer to curriculum design needs, they do provide valuable guides for teachers and administrators.

Instructional Methods

Under learning style theory, instruction is focused on identified individual learning style. A variety of identification instruments have been described previously. The manner in which instruction can be keyed to learning style is well noted in the literature. Three primary instructional approaches include: (1) matching the student of a teacher with a complementary instructional style; (2) having the teacher alter instructional style to match student preferences; (3) directly instructing the student on the understanding and use of learning style.

Many teachers routinely attempt to address student needs through adaptation of instructional approach. Proponents of learning style argue that most adaptations are quantitative in nature and simply adjust the amount of time spent with individual students (Curry, 1990). The basic need is for qualitative adjustment focused on identified aspects of learning style. Once student learning styles have been identified through the use of some assessment system, instruction may be adapted to meet individual needs. Not all instruction must be done individually; in most classes, groups of students with similar styles may be identified.

Assessment Methods

Curry (1990) emphasized that teachers know that various forms of assessment fit individual students in different ways. Paying attention to learning styles means that students will be taught and evaluated in ways congruent with their learning styles. This is the one area where any effect of forming curricula and instruction with regard to individual learning style will be most obvious. The literature referred to previously, particularly that detailing the experiences of practitioners, provides multiple discussions of the way in which assessment may be accomplished.

At another level of assessment, diagnostic measurement of learning styles takes place. Various measurement instruments suitable for use with the 15 to 18 year old learner cohort have been developed. Among these are teacher administered and self-administered instruments. As noted by Huff, Snider, and Stephenson (1986), the possibility exists for entire secondary school populations to be assessed to determine individual learning styles. Indeed, a number of high schools have assessed their entire populations in a planned and determined effort to implement learning style-based instruction.

Student Guidance

Guidance in learning styles has two salient characteristics. Career and personal information, the common content areas of guidance, are related by taking into consideration the individual learning style of the counselee. Also, the guidance counsellor can advise the student in the most effective use of learning style. Jacobson (1988) noted that his school guidance counsellor was enthusiastic about the success of basing individual, peer, and group counselling interventions on the learning preferences of students. Kadwa and Griggs (1985) argued that attention to learning style in counselling may have an effect on the rate of school dropouts. Practitioners in schools where learning style concepts are implemented consider counselling more effective when learning style is considered.

Huff, Snider, and Stephenson (1986) noted that "often the theories counsellors use are the ones that they originally studied in university and teacher training. (See earlier sections of this review on development.) Thus, the counsellor's orientation could be one of behavioural psychology, a phenomenological approach, existential or eclectic" (p. 72). They view the use of learning style concepts in Ontario schools as a useful basis for counselling.

Learning Styles: A Summary

Learning styles is a relatively recent and largely unexplored area for educators in Ontario secondary schools. A confusing variety of theoretical positions have been advanced. Assessment systems have been designed to explore individual learning styles as described under a number of these theoretical postulations. Most familiar and popular is the learning styles concept formulated by Dunn and Dunn and assessed using the Learning Style Inventories of Dunn, Dunn, and Price (1989).

Instructional implementation of learning styles has taken two paths. Most practitioners have favoured matching instructional style to student learning style. A number of theorists, researchers, and practitioners prefer direct instruction through which the individual student is taught to recognize and utilize learning styles appropriate to differing tasks.

The research supporting learning styles for use with adolescents is modest in the number, variety, focus, and technical sophistication of available studies. Though many practitioners and researchers advocate implementation of learning style theory in secondary schools, many others remain unconvinced. While attractive in concept and tantalizing in promise, insufficient study has been given to learning styles to award it unrestricted approbation.

II — LITERATURE REVIEW

Dropouts

Introduction

Too many young people in Canada dropout of school. Serious consequences follow for their self-esteem, personal economic status, the economy, and for society in general (Social Development Overview, 1991). The Canadian Press (1991) reported that the dropout rate in 1988 was 33 per cent in Canada and 34.1 per cent in Ontario. Employment and Immigration Canada has estimated that 100,000 young people will leave high school in 1992 before graduating. The result is that only 72 per cent of Canadian 17 year olds are in school compared to 94 per cent in Japan and 87 per cent in the U.S. (CCSD, 1991). The major problem, according to the literature, is that leaving school early results in educational deficiencies that will most likely limit an individual's economic and social opportunities (Sloan, 1989; McCormick, 1989).

There is general consistency in the literature in terms of the characteristics of individuals who drop out of school and the principal conditions that contribute to students becoming at risk of dropping out (French & Nellhaus, 1989; Smith & Ament, 1990; Wittenberg, 1988). Factors such as low socioeconomic status, gender, ethnicity, family support systems, personal and social psychological factors and factors related to the structure and organization of schooling have all been shown to contribute to dropping out (McMullan, Leiderman, & Wolf, 1988).

In considering the problem of the high school dropout, the literature on the "marginal student" or "student at-risk" of dropping out must also be examined. Research has suggested that adolescent at-risk factors are interrelated and may be used for early identification (Dryfoos, 1990; Dunham & Alpert, 1988; Earle & Roach, 1988; Smith & Ament, 1990; Stedman et al., 1988). However, it should be recognized that any individual dropout will show unique combinations of these risk factors (Dryfoos, 1990; Cavazos, 1989).

Tindall (1988) provided an excellent summary of the risk factors that have emerged through opinion research with educators, social workers, and advisory commissions. In addition to family and school factors which will be outlined in detail below, substance abuse (Tindall, 1988; Mensch & Kandel, 1988; Friedman, Glickman & Utada, 1985; McCormick, 1989), lack of goals or career options (Williams, 1985; Tindall, 1988), lack of motivation, child abuse and neglect (Tindall, 1989; Wittenberg, 1988), lack of links between the school and community, and problems of delinquency (Tindall, 1989; Dunham & Alpert, 1988;. McCormick, 1989), and run away youth have been shown to contribute to the process of dropping out. However, too often the symptoms rather than the underlying causes have been the focus of intervention (McMullan et al., 1988).

The current review has focused on developing a profile of the dropout and the current initiatives and policy implications that have been generated around this issue. The review is organized around the following areas: problems of definition and the incidence of dropping out, factors external to the school, school-related factors, and current policy initiatives.

Embedded within this discussion is a review of learning styles theory and the relationship of learning styles to dropping out. While this is a relatively new area of research, it has begun to be addressed; findings as well as new policy initiatives will be discussed. Furthermore, the impact of the quality of daily family relationships on dropouts has only recently generated interest. The available literature on this issue will also be briefly reviewed.

The Incidence of Dropping Out: Problems with Definition

The state of the literature and databases on early school leavers continues to be plagued by problems of definition (Morris, Pawlovich & McCall, 1991; Hoffman, 1990; Parkin, 1989; Gallant & Housden, 1986; Morrow, 1986; Hammack, 1986). While there is an abundance of literature relating to the topic, estimates of the numbers of dropouts are conflicting. Three factors can be seen as responsible for these difficulties (Brown, 1990).

Firstly, there does not appear to be a consensus in definition of the term 'dropout'. For instance, the Ontario Ministry of Education has published nine studies related to dropping out. Three of these, Radwanski (1987), Sullivan (1988), and King, Warren, Michalski & Peart (1988), defined a dropout as "any student who leaves school before having obtained his/her Secondary School Graduation Diploma" (Radwanski, 1988 p. 67). Those who leave school, but later return, are still considered to be dropouts. However, Karp (1988) defined the dropout as anyone who has not completed grade 12. Returning students are not excluded from the definition but are termed "dropbacks." A further report to the Ministry of Education by Lawton and Leithwood (1988) recommended that students who leave school without a diploma or are absent in excess of 20 days should be considered dropouts. Adding to this confusion, the separate school boards in Ontario generally establish their own criteria or definition of the dropout. Thus, comparison from school board to school board is difficult as is comparison from province to province (Brown 1990).

Secondly, there is much variability in the formula used to calculate the dropout rate. Brown (1990) reviewed the common procedures and concluded that cross-sectional and longitudinal methods are the most commonly used procedures. In the cross-sectional approach, the number of students dropping out in a given year is calculated by dividing the number of dropouts by total enrolment for a year. The longitudinal or cohort approach consists of following a group of students for two or more years and dividing the number of dropouts by the numbers identified originally. Morris et al. (1991) added to this list of procedures by suggesting that the status rate is also sometimes used. In this case, the percentage of persons in a specified population who are currently not in school or who left school early are counted at any one time. This rate then reflects the status of individuals who have not completed high school. When reporting on dropout status, a person is counted only until the time at which they complete secondary school. Generally, it is the 16 to 24 year old cohort within the general population that is used as the focus of the status rate calculation (Morris et al., 1991).

Disagreement also exists in the literature as to which is the preferred method of rate calculation. For instance, Orr (1987) suggested possible inaccuracies in the longitudinal method as it fails to take into account those who progress faster or slower through the school system than their cohort. However, Morrow (1986) argued that the longitudinal cohort analysis presents a more accurate picture of the larger scale success and failure rates of specific school programmes. Wolman, Bruininks & Thurlow (1989) explained that regardless of which rate calculation is used, the distinction between the two should be remembered so that it is understood that the cross-sectional approach will always produce lower rates than the longitudinal cohort approach.

The third problem relating to definition is that errors are often committed in determining the dimension of the problem. It has been suggested that there may be some omission of numbers or inconsistency of reported numbers of dropouts by specific boards of education (Hahn, 1987; Mann, 1986; Lawton & Leithwood, 1988). Specifically, it was suggested that some boards may forget to discharge students who are truant for more than 20 days. Thus, Mann (1986) noted that dropout rates could vary according to purpose. For example, if more money is needed to start a new programme, numbers could be higher than if the board is defending itself and its retention rates.

Thus, while technology is capable of generating such information, there is still no Canadian national database capable of tracking students through their school years (Morris, et al., 1991). Radwanski (1987) estimated that Ontario's dropout rate is 33 per cent based on a grade nine cohort. However, he also calculated an annual rate for 1984 of 8.7 per cent. Lawton's and Leithwood's (1988) calculations indicated a dropout rate for 1984 of 14 per cent which changed to 11.4 per cent when adults were excluded. However, Education Statistics (1986) reported the dropout rate in Ontario to be 13.8 per cent for the 1983-84 school year. The above discussion illustrates the extent of the confusion over definition. Further, Canadian statistics are difficult to obtain. King (1988) has suggested that little comparative data is available because Canadian education is a provincial rather than a federal matter.

Factors External to School

The decision to drop out does not take place in a single impulsive moment; rather, it is the culmination of a process that begins psychologically and emotionally long before entry into secondary school (Bearden, Spencer, & Moracco, 1989; Bhaerman & Kopp, 1988; Gastright, 1987; Lawton et al., 1988; McMullan et al., 1988; Wittenberg, 1988). Specific factors external to the school have consistently been found to be of importance in describing the dropout including family background, family structure, geography, race/ethnicity, gender and life events.

Family Background

Being born into a family of low socio-economic status (SES) may itself be the beginning of the dropping out process. Radwanski (1987) stated that:

> Virtually every study done of the dropout issue has found a strong link between family background and the likelihood of dropping out. The lower the income level, occupational status and level of education of his/her parents the greater is the statistical risk that any given student will not complete school (p.71).

Family background has both direct and indirect effects on schooling (Teachman, 1987). Researchers have stated that children of less well-educated parents, in lower socio-economic status households, tend to receive less intellectual stimulation in the pre-school years. Their parents are not likely to have read to them or to have spoken to them in ways that broaden their vocabulary and interests (Ekstrom, Goertz, Pollack, & Rock, 1986; Gastright, 1987; Radwanski, 1987; Ruby & Law, 1987). In addition, parents who are more educated, affluent and sophisticated generally communicate higher educational expectations to their children (Lawton, Leithwood, Batcher & Donaldson, 1988; Radwanski, 1988; Smith & Ament, 1990; Williams, 1985; Wittenberger, 1988).

It has been suggested by Larsen and Shertzer (1987) that children gravitate toward the social and occupational status of their parents and that those who come from lower SES backgrounds may therefore see education as unnecessary. Dropouts have been reported to come from families with weak educational support systems in which parents show less interest in school-related activities, have poor communication with the school, and provide few study aids or opportunities for non-school related learning (Gadwa & Griggs, 1985; Eckstrom et al., 1986; Egginton, Wells, Gaus & Esselman, 1990; Stevenson & Baker, 1987). These parents may hold low aspirations for their children, since they often fail to understand the importance of education to their children's future success. Various researchers (Ruby & Law, 1987; Rumberger, 1983; Wittenberg, 1988) have noted that there is a lack of support from parents who themselves have little education. They have suggested that children assimilate negative attitudes which lead to poor grades and misbehaviour. Radwanski (1988) raised an important issue in noting that the majority of general and basic level students do not intend to go on to post-secondary education. These students do not see remaining in school as giving them any kind of advantage in the workplace.

Recent research has tended to focus on family background variables and school experiences related to adolescent achievement (Wittenberg, 1988). There is more to the family's impact on education than can be explained by such demographic variables as family size, structure, socioeconomic status, parents' education. Much of past research concerning the interaction of family influences and academic issues has focused on these static variables. It is important, therefore, not to equate the concept of family background and its inherent interrelationships with the often used demographic indicators of the concept. This is not to suggest that the demographics of the family are not important. "The term family background is meant to encompass a wide range of experiences, relationships and resources associated with a student's family" (Rumberger, Ghatak, Poulous, Titter, & Dornbusch, 1990;284).

It is apparent from the literature that in the past twenty years, important progress has been made in our understanding of social processes inside the school. Surprisingly, very little research has focused on the relationships and interactions within the families of dropouts or on the processes within the home and dropping out as a whole decision process (Amato, 1988). How well we understand what is going on in the minds of these young people and how their families have been relating to each other is essential information to our understanding of the dropout. The majority of studies investigating the dropout issue have found a strong link between family background and the likelihood of dropping out of school (Mannheim, 1988; Marjoribanks, 1979; Rumberger, 1983; Rumberger et al., 1990; Wehlage & Rutter, 1986). Rumberger (1983) further proposed that family background is one of the most powerful predictors of dropout behaviour.

Rumberger et al. (1990) have suggested that parenting styles may also be related to dropping out. In their major study of the transition through school, they observed that parents of children who later dropped out were more likely to have adopted a permissive parenting style. These authors have suggested that permissive parenting leads to many of the behaviours that are associated with dropping out such as poor attendance, low grades, and discipline problems in school. They also found that parents of dropouts tended to use negative sanctions and extrinsic punishment for poor school performance, which may in turn have reduced the dropouts' internal motivation to succeed in school. Parents of other students were more likely to use positive emotional reaction (Rumberger et al 1990).

Family Structure

Family structure and support appear to have a significant impact on academic achievement and the eventual decision to drop out. Students from single-parent households are considerably more likely to drop out than those who come from a household in which both parents are present (Karp, 1988; Williams, 1985; McMullan et al., 1988). Two Canadian studies conducted in the mid-1980's revealed that fully 40 per cent of dropouts lived in single parent households (Karp, 1988), and that students who were most likely to continue school for four or more years came from homes in which both parents were present (Wright, 1985). Both Canadian and American studies have shown that children living in mother-headed households are most likely to be assessed by teachers as having conduct, personality or immaturity problems (Myers, Milne, Baker, & Ginsburg, 1987; Radwanski, 1988; Wehlage & Rutter, 1986). It is therefore important to note the connection between single parent households and low SES which is occurring as a consequence of the current "feminization of poverty" (Earle & Roach, 1989; McCormick, 1989; Neckerman & Wilson, 1988; Pagelow, 1984; Willis, 1989). Thus, the increasing numbers of poor, female single parents may continue to exacerbate the dropout problem in the future.

It has also been reported that adolescent dropouts generally come from larger families and have more older siblings who have also dropped out as compared with persisters (Egginton et al., 1990; Gastright, 1987; Poulos, 1986; Williams, 1985; Wolman, Bruininks & Thurlow, 1989). Dropouts have also been shown to be more likely to experience conflict in home life, parental absence, inconsistent discipline, hypocritical morality, poor communication, parental conflict, and family breakup (Weber & Sivani-Lacey, 1983; Self, 1985; Bempechat & Ginsberg, 1989).

Geography

The literature on the relationship between urban and rural residence and school withdrawal is surprisingly sparse (Morris et al., 1991). Willis (1989) has argued that there is a relationship between residential area and educational outcome. While there are substantial differences among schools in urban, suburban and rural areas, the distinctions are particularly noticeable in terms of the educational prospects available to students. The conditions in many American inner-city schools are deteriorating and some have dropout rates exceeding 50 per cent (Willis, 1989). Suburban schools are usually in more affluent areas, and appear to have lower dropout rates. The research clearly attributes the differential outcomes of students from affluent and poor schools, in all geographic areas, to the socio-economic background of the students (Willis, 1989; Rumberger, 1983; Catterall, 1986; Fine, 1986; Ekstrom et al., 1986).

In a regional analysis of Ontario students, Sullivan (1988) has stated that "high school dropouts are more prevalent in southwestern and northern Ontario, as well as in smaller communities" (p.63). According to this study sponsored by Employment and Immigration, dropouts were more often found in communities with populations of less than 10,000 while large urban centres such as Toronto had fewer dropouts. This suggests that students from larger urban areas are more likely to recognize the importance of a high school diploma.

Race/Ethnicity

In several American studies, race and ethnicity have been shown to be strongly related to dropping out (Eckstrom, et al., 1986; Poulos, 1986; Robledo, 1988; Willis, 1989). The majority of American research in this area clearly suggests that dropout rates are highest among American Indians and Alaska Natives, followed by students who are Hispanic, Black, White and Asian (Kunisawa, 1988; Wolman, Bruininks, & Thurlow, 1989; Gadwa & Griggs, 1986; Henry, 1986; Rumberger, 1983, 1986). Rumberger (1983; 1986) has suggested that the dropout rates among racial and ethnic minorities may actually be decreasing. However, Wehlage and Rutter (1986) have argued that if family background is statistically controlled, race is not a predictive variable for dropping out.

In Canada, there is less clear evidence on the relationship between race/ethnicity and dropping out of school. Karp (1988) reported that teachers frequently mentioned ethnicity when discussing the dropout problem, while the dropouts themselves did not. Karp has suggested that this factor may be more significant in Toronto than in other parts of Ontario. Sullivan (1988) has also stated that ethnic background is not associated with dropping out. In their 1988 study, King, Warren, Michalski, and Peart did not mention ethnic group or race; however, King (1989) cited studies indicating that higher proportions of Black, Native and Portuguese youth were found among dropouts. Radwanski (1988) reasoned that since the overwhelming majority of dropouts were born in Canada, ethnicity should not be seen as a key component in Ontario's dropout problem.

MacKay and Myles (1988) in their report on Native Student Dropouts in Ontario Schools stated that it is difficult to assess the dropout rate of Native students since formal records are not maintained by bands. The National Stay In School Initiative reported that dropout rates are particularly high among Native youth (as high as 70% in some areas), and among members of some visible minorities (Employment and Immigration, Canada, 1990). However, unofficial records kept by school boards with large numbers of Native students suggest that, although retention rates are on the increase, keeping Native youth in school remains a significant problem (MacKay & Myles, 1988). Statistics Canada (1986) reported that the retention rates for Native students improved from 18 per cent in 1975-76 to 31 per cent in 1984-85. Despite the improvement in retention rates, these statistics indicate a dropout rate of 69 per cent.

Gender

Some researchers have found that more boys (approximately 60%) than girls (40%) leave school early, and these figures appear to have remained fairly constant over time (Castello & Young, 1988; King, 1988; Sharman, 1990; Wright, 1985). However, Earle & Roach (1989) suggested that males and females drop out at approximately the same rate.

Karp (1988) reported that there is little that distinguishes female from male dropouts, except for the higher percentage of females who leave due to pregnancy and, according to Mann (1986), 51 per cent of males, but only 33 per cent of females who drop out do so because they "dislike school." Earle & Roach (1989) suggested that dropping out due to pregnancy is stereotypical. Even though 40 per cent of girls who drop out are pregnant or getting married, the majority of girls who drop out are not.

It has been suggested that gender differences among dropouts are related to more generalized differences between males and females and gender role socialization. Socialization towards the acceptance of some adult roles may affect the chances of dropping out (McMullan et al., 1988). Ekstrom et al. (1986), noted that female adolescents who hold more traditional views on gender roles are more likely to drop out than those with more egalitarian views.

Males are twice as likely as females to report leaving high school because of behavioural problems, including not getting along with teachers and being suspended or expelled. Males are also more likely to leave school because of economic-related issues, including having been offered a job or having to support the family (Ekstrom et al., 1986). Just as for females, too little is known about the school factors that affect male dropouts and therefore, how programmes can be tailored to help them.

Spindler (1989) stated that:

> We have also found that males and females appear to perceive the choices open to them rather differently and that females more often than not opt for choices that are not available in the status quo, in contrast to males, who seem to find their lot, whatever it is, more acceptable (p.135).

This suggests that female students may see education as necessary for future opportunity more often than males, and therefore, females would be less subject to dropping out.

King et al. (1988) also found that dropouts were much more likely to be enrolled in general and basic level than advanced level courses. This finding is partly related to gender differences in dropout rates since more males than females are enrolled in general and basic level courses. A further interactive effect has been reported by Earle & Roach (1989) who have shown that parent's SES is a more important factor influencing the dropout rate for girls than it is for boys. Adolescent girls who have come from a background of poverty are at greater risk of dropping out. Furthermore, the number of siblings is particularly critical in assessing the risk of dropping out for young women because they are more likely to drop out in order to care for younger siblings than are young men (Ekstrom et al., 1990; Earle & Roach, 1989). In a recent study, Teachman (1987) found that for females, educational resources within the home and family have a positive impact on educational attainment, while for males the effect of educational resources on schooling is not statistically significant.

Research indicates that schools and teachers (both male and female) still tend to be more responsive to males in terms of their learning styles, their needs, and their futures, than they are to female students (Earle & Roach, 1989; Posner, 1990). Moreover teachers, regardless of gender, generally pay less attention to female students than to males (Posner, 1990). Also, early socialization, cognitive differences, treatment by teachers and curricular choices have a negative impact on both the self-esteem and academic achievement of young women (Earle and Roach 1989; Catterall, 1985; and Ekstrom, 1985; WEEA, 1990). On the basis of this evidence, the dropout rate for males should be somewhat less than for females. However, the data suggest that boys are consistently over-represented in early school leaving statistics (Morris et al, 1990). Literature which addresses this apparent contradiction is generally unavailable to date. As Stroughton & Grady (1978 as cited in Morris et al., 1990) have suggested, gender differences in dropout rates and the pronounced pattern of male underachievement in general reflect the concerns of researchers who are now asking:

> Is there discrimination by sex in schools? Is there some negative female teacher modelling effect? Are the expectations held for the high school student sex-linked? Are the schools meeting the needs of all their students? Are there new approaches to enable all students to graduate from high school?

Life Events

The experiences of certain life events can influence a student's decision to drop out of school. The three most prevalent of these are part-time work, pregnancy and marriage (Sullivan, 1988). It has been shown that the majority of 15 to 18 year olds are involved in some form of part-time work. In a survey conducted by King et al. (1988) of Grade 11 to 13 general and advanced level students, 57 per cent of the grade 11, 67 per cent of the grade 12, and 71 per cent of the grade 13 students were employed in part-time jobs. Other researchers noted that although they did not see that part-time work directly led to dropping out, it did interfere with school work (e.g. homework, study habits, concentration in class, limited extra-curricular activities) (Greenberger & Steinberg, 1986). The majority of research however, suggests that part-time employment which exceeds 15 hours is correlated with dropping out (Mann, 1986; Natriello, 1985; Orr, 1987).

Researchers have consistently cited early marriage and/or early pregnancy as playing a dominant role in dropping out of school (Wolman et al., 1989; Egginton et al., 1990; Smith & Ament, 1990; Ekstrom et al., 1986). However, Earle & Roach (1989) suggested that 60 per cent of female adolescents who drop out of school do so for reasons unrelated to pregnancy. For those experiencing teen pregnancy as a life event, it has been suggested that pregnancy could be symptomatic of previously existing problems such as "low self-esteem, poor academic achievement and more generally, a lack of options" (Earle & Roach, 1989:4). Poor school performance also applies to the pregnant or parenting adolescent (Debolt, Pasley, & Kreutzer, 1990), and research consistently has found that SES is an important correlate of school dropouts among this group (Fine, 1986; Debolt et al., 1990).

Dysfunctional behaviours such as truancy, delinquency, and substance abuse have also been shown to be linked to dropping out (Dryfoos, 1990; Dunham & Alpert, 1987; Friedman, Glickman & Utada, 1985; McMullan et al., 1988; Mensch & Kandel, 1988).

School Performance

A child begins school in either an advantaged or disadvantaged position depending on the above mentioned factors which are external to the school system. However, school experiences can confirm or counter this predisposition (Catterall, 1987; Desnoyers & Paulker, 1988; Stedman, Salganik, & Celebuski, 1988). Phelan (1986), Radwanski (1988), and Lawton et al. (1988), among others, have suggested that school-related factors operate as intervening variables which can decrease or increase a student's predisposition to withdraw before graduation. In Ontario studies, a significant number of dropouts have reported school factors as their reason for dropping out (44% in Radwanski's study, 1987; 45% in Karp's, 1988).

One of the strongest correlations to dropping out is lack of success in school. In fact, low academic achievement and school failure are the most frequently cited descriptors of school dropouts (Eckstrom et al., 1986; Karp, 1988; Lawton et al., 1988; Wittenberg, 1988; Gastright, 1987; Gastright & Ahmad, 1988). While the focus of this review is on 15-18 year old students, it is interesting to note that Lloyd (1978) determined that as early as grade three, predictions could be made concerning school completion, and that these predictions were correct in approximately 75 per cent of cases. Children who have low scores on achievement tests and who are performing at one or more years below grade level, are at risk of leaving school early (Orr, 1987; Natriello, 1985). This risk increases for children who have had to stay behind a grade (McCromick, 1989; Radwanski, 1987; Wehlage & Rutter, 1986). Failing a grade increases the risk of dropping out to between 40 and 50 per cent and failing two grades raises the risk to 90 per cent (Mann, 1986). Karp (1988) reported that one in three dropouts had failed a grade in elementary school.

By secondary school, many adolescents are legally in the position to drop out. Karp (1988) reported that most dropouts leave school in grades 10 (27%) and 11 (30%). Sullivan (1988) has estimated that 29 per cent of students drop out in grade 10 and 39 per cent leave in grade 11.

Academic frustration is another of the main reasons cited by students who have dropped out. Many students who experience academic frustration have learning difficulties and without remediation, they get further and further behind in school (Karp, 1988; Radwanski, 1988; Rumberger, 1986). Poor reading ability is most often cited in the literature as a major problem for students who eventually drop out, since it leads to the lack of basic skills in high school (Barrington & Hendricks, 1989; Bearden et al., 1989; French & Nellhaus, 1989; Gastright & Ahmad, 1988; Hahn, 1987; Rumberger, 1986; Self, 1985; Wehlage & Rutter, 1986). Karp (1988) suggested that students are able to recognize their academic limitations, but are frustrated in their attempts to deal with them. The primary reason students drop out is to escape more failure (Wittenberg, 1988; Gastright, 1987; Grossnickle, 1986).

Adolescents who drop out rarely participate in extra-curricular activities, especially athletics (Orr, 1987; Willis, 1989; Wolman et al., 1989). This is evident throughout their entire school careers and has been shown to lead to feelings of alienation (cited in Self, 1985; Ekstrom et al., 1986). Lawton et al. (1988) reported that although there was little evidence that participating in extra-curricular activities kept students in school, students who were at risk of dropping out usually did not become involved in such activities. Radwanski (1988) also recognized that the student who is at greatest risk participates the least.

Individual Characteristics

Some researchers have reported that dropouts can be differentiated from those who complete high school on the basis of certain psychological attributes. For example, low self-esteem, low self-confidence, social immaturity, introversion, non-conformity, poor long-range planning orientation, poor deferment of gratification, concrete thinking, and external locus of control are characteristics associated with dropouts (Gadwa & Griggs, 1985; Garber, Sunshine, & Reid, 1989; Grossnickle, 1986; Karp, 1988; Radwanski, 1988, cited in Self, 1985; Wittenberg, 1988; Wolman et al., 1989).

Recent literature also connects learning style to risk of dropping out (Carbo & Hodges, 1988; Dunn, 1990; O'Neil, 1990). Learning style has been defined as a "biologically and developmentally imposed set of personal characteristics that make the same teaching method effective for some and ineffective for others" (Dunn, Deaudry & Klavas, 1989:50). Throughout the literature, school-based problems form one of the most important parts of the dropout process (Karp, 1988; Morris et al. 1991). As dropout rates persist, attending to individual learning styles is now being viewed as one way to expand teaching methods and curriculum to reach more students (Morris et al., 1991). Specifically, students' motivation and achievement increase when teaching methods match their learning styles (Dunn, Beadry & Clavis, 1989; Wheeler, 1980; O'Neil, 1990; Guild, 1990; Dunn, 1990; Brandt, 1990).

It has also been shown that dropouts are the most severely mismatched with what is often going on within the classroom and that they are at greater risk if individual learning styles are not attended to. For example, it has been found that dropouts tend to work better in soft light and in informal design which are not often available choices in the schools. Further, they like to work with peers but are often made to work alone (O'Neil, 1990). Within the school system, the needs of the group become more important than individual needs (Wyse, 1987).

Studies over the past decade have yielded important information about the effects of environmental, emotional, sociological, physiological and cognitive preferences on the achievement of students (Flora, 1989; Griggs, 1983; Perrin, 1990). Dunn's (1990) approach recognizes the complexity of individual learning styles and has implications which if and when implemented may decrease the dropout rate. The Learning Styles Inventory developed by Dunn has been used extensively in diagnosing individual learning styles and in developing learning interventions in response to individual needs (Griggs, 1983).

In a summary of observations of learning styles by Karp (1988), a number of characteristics of dropouts were listed. These characteristics include the non-academic learner (students who need to be able to see the relevance of a subject), the short-range goal setter, the hands-on learner, the frustrated learner, the reward-driven learner, the work-driven learner (meaningful work needs to be relevant), the alienated learner (students who feel neglected in a system geared to academic achievement), and the concrete learner (those who think in terms of the visible and measurable).

Carbo (1990) concluded that there is a possibility for students who are not experiencing success in school (the at-risk student), to become successful learners if they are taught in ways that allow them to use their strengths. For example, tactile learners can master the same material as auditory or visual learners if appropriate teaching methods are used.

Attitudes and Discipline

In reviewing the self-reported reasons for dropping out, dislike of school is a common theme. Research has suggested that early attitudes about school are developed in the family, but school experiences can affect the orientation toward schooling (Ruby & Law, 1987; Rumberger, 1986; Willis, 1989). Students who are experiencing difficulty achieving have been found to believe that teachers don't like them, don't care about them, or don't take the time to help them (Wittenberg, 1988). In studies by Karp (1988), Sullivan (1988) and Wells (1983) it was found that difficulties with teachers reinforced the dropouts' sense of alienation and dislike of school, and dropouts reported that they did not believe teachers cared about them nor whether or not they left school.

Ruby & Law (1983) in their study **Potential School Dropouts—The Attitude Factor**, found that students showed a strong negative attitude toward teachers. They stated:

> It is this negative attitude toward teachers when combined with a negative attitude toward appropriate school behaviour which encourages the overt negative behaviour associated with the dropout (p.8).

Children who are unsuccessful students typically come to a class unprepared, are antagonistic toward the school rules, and do not seem to view school as a necessary component to a successful future (Ruby & Law, 1983). Often negative attitudes toward education and the system remain hidden and do not appear in behaviour until adolescence, when attitudes are susceptible to change and when authority begins to be questioned and challenged (Ruby & Law, 1987). The stage is then set for a confrontation between teacher and student, and usually some form of punishment results for the student.

As a consequence of these experiences, negative attitudes develop, which lead to on-going discipline problems and reinforce negative individual characteristics, further precipitating the act of dropping out. "It would appear that it is not the behaviour of students which is critical to success or failure in school, but the effect that attitude has on how one perceives the purpose of school" (Ruby and Law, 1983, p.9).

Students who develop these negative attitudes and become discipline problems are more likely to cut classes and have chronic absenteeism and eventual suspensions or expulsion than are non-dropouts (Eckstrom et al, 1986; French and Nellhaus, 1989). When punished, students characteristically react in one or more of the following ways: (1) they become apathetic and grades drop; (2) they become aggressive and cause behaviour problems; or (3) they try to avoid the situation by skipping school or classes (Ruby & Law, 1983, p.5).

Canadian researchers have found that a significantly higher rate of absenteeism occurs in the year prior to leaving school (Morris et al., 1991). Lawton et al. (1988) found a high correlation between suspensions and the dropout rate, and they also noticed a relationship between non-attendance and dropping out. They speculated that, "dropping out could be the unintended consequence of a slide which began with having skipped too many classes" (p.66). Similarly in the **High School and Beyond Study**, Hahn (1987) noted that one in five male dropouts did not get along with their teachers, and more than one in ten had been suspended or expelled.

Findings in the literature have also shown that those who have exhibited out-of-school delinquency, or who have been expelled, are three times more likely to drop out (Dryfoos, 1990; Gastright, 1987; Orr, 1987; Williams, 1985). Wehlage and Rutter (1986) and Wittenberg (1988) saw in-school delinquency as a strong predictor of dropping out.

Support Systems

The connotation of the term "dropout" is that the student has left school willingly and without good reason. The literature demonstrates strong evidence that from the dropouts' perspective, leaving school is a consequence of the treatment they receive at school, or the failure of the school programmes to meet their learning needs (Tanner, 1987). In effect, these students are forced, streamed or pushed out (Gilmore & Smith, 1989; Desnoyers & Paulker, 1988).

According to Kunisawa (1988), the problem is not the students who drop out but a dysfunctional educational system (e.g., poor leadership at board and school level, uncaring school atmosphere, overcrowding, poor order and discipline, and high school failure rates) that produces dropouts. Featherstone (1986) has noted that the practices and policies identified by research to be detrimental to students' school success are among the major causes of the dropout problem (cited in Garber et al., 1989). The majority of dropouts have experienced many difficulties adjusting to the demands of the school programme, resulting in resentment and hostility toward the school in general and to teachers in particular (Radwanski, 1988). This discomfort has consequences that reverberate through generations.

Similarly, Stedman et al. (1988) suggested that school is an important component in the dropout puzzle. Being at-risk makes a student more vulnerable to school experiences and policies. Garber et al., (1989) noted that schools, as institutions, contribute significantly to a student's decision to drop out of school. Catterall (1987) is one of several critics supporting efforts to examine school practices that may complicate the dropout problem. Some studies have suggested that schools send signals to poorly achieving students and those who are discipline problems, in a sense urging them to leave (Mann, 1986; Tanner, 1987; Wehlage & Rutter, 1986). Other evidence suggests that many dropouts face personal and economic conditions that seriously limit the possibility of their continuation or success in school (Beekman, 1987; Sherman, 1987; Stedman et al., 1988). Thus, a lack of encouragement may compound a student's personal and family problems, further reducing any desire or ability to remain in school.

The literature notes that a boring, irrelevant curriculum is reported as a reason for students leaving school (Karp, 1988; Sullivan, 1987; Whelage & Rutter, 1986). However, Radwanski (1988) and King et al. (1988) warned that boredom may be more frequently reported since it is a more socially acceptable reason for leaving school than failure.

King et al. (1988) suggested that the best predictor of school leaving is the level at which courses were taken and that the majority of students who leave school prior to graduation take courses at the general level. King (1989) reported that 12 per cent of Ontario's dropouts took their courses at the advanced level, 70 per cent of the dropouts were general level students and 18 per cent were enrolled in basic level courses. The disproportionate number of dropouts from the general and basic levels becomes evident when one considers that 61 per cent of Ontario's students take courses at the advanced level, 32 per cent at the general level and 7 per cent at the basic level.

Lack of academic success, boredom and subsequent dropping out are often linked to streaming or tracking. General and basic level programmes appear to be less challenging and rewarding for both students and teachers (McMullan et al., 1988; Castello & Young, 1988). Radwanski (1988) suggested that such courses are unchallenging, boring and appear pointless. Lawton et al. (1988) found that many teachers prefer to teach advanced courses and feel they are being penalized when they are forced to teach general and basic courses. Students taking classes at the general and basic levels can only emerge with a negative attitude as well. Not all authors reviewed believe that streaming contributes to dropping out. For example, Karp (1988) reported that the majority of students appreciated being able to study at their own level. Karp does mention, however, that dropouts view the general level student as the "neglected silent majority" (emphasis added) in the school system. According to Karp (1988), "a family analogy would suggest that these students demonstrate characteristics of a middle-child syndrome" (p.31). The students in the general level stream were seen as receiving less from the school system in terms of special attention.

The quality of the school is, of course, a major factor influencing the dropout rate, as are the actual classroom practices and attitudes of teachers. Researchers have suggested that the teacher is the key ingredient for a dropout's sense of success or failure within the school system (Karp, 1988; Rhodes, 1987). In Karp's study, 47 per cent of the responding students identified caring teachers as the one factor that might have kept them in school; 75 per cent agreed that teachers do not have patience for slow learners or students with other problems. Gouldner (1978) has suggested that "teachers possessed a kind of mental template that helped them to organize their classrooms to the advantage of socially and economically privileged students, and to the disadvantage of others" (quoted in Papagiannis, Bickel and Fuller, 1983:375). It is suggested that this is particularly obvious in schools where the differences in social class are noticeable and easy to identify (Gouldner, 1978; Laureau, 1987). Teachers unconsciously label students through observance of common-sense factors such as dress, personal grooming, body odour, and background information (i.e., social worker reports) (Papagiannis et al., 1983).

Children may arrive in school lacking the "readiness to learn" (Berens, 1989). According to Berens, two factors change the child's initial weaknesses to risk factors for dropping out: the tendency to group children in terms of their "readiness to learn" and the lowered expectations teachers hold for them. Natriello (1988) supports Beren's view and suggests that there is a mismatch between school demands and student behaviour which widens over time lessening the student's chance for success.

Peer influence has not received much attention in the literature on the dropout problem, although it has been a subject of much interest in other areas of educational achievement (Rumberger, 1986). Many dropouts have friends who have also dropped out of school (Eggington et al., 1990). However, the extent to which and the ways in which adolescents' friends and peers influence the decision to drop out of school has not been clearly addressed (Rumberger, 1986). Eggington et al. (1990) found that peer-related responses cited most often by the dropouts included the inability to get along with other students (47%) and situations where friends of the respondents were dropping out of school (46%).

Delgado-Gaitan (1986) has suggested that it takes all components such as the family, the peer group and the school to socialize the students to succeed in school. Thus, while the peer group's influence on dropping out must be examined, it should also be contextualized and recognized as only one part of the total dynamics that can influence students to change their belief systems.

Applications

Much of the research on the problem of school dropouts has focused on the scope of the problem rather than on potential solutions (Sherman, 1987). Many of the emerging strategies are so recent that longitudinal assessment has not taken place and often data cited in studies fail to provide empirical evidence to support the claims about programme effectiveness (Morris et al., 1991; Desnoyers & Pauker, 1988). The research on prevention strategies is somewhat conflicting in that different policy makers choose different points as the relevant place to intervene (McMullan, 1988).

Despite the limitations, the research does offer some insights. Understanding the process involved in dropping out has a number of implications for designing dropout prevention strategies. The process involves a complex developmental interaction among students' family backgrounds, early ability, and achievement in school, and the school's ability to enhance or interfere with that achievement and personal stresses and/or life events within and outside of the schools. Therefore to be successful, dropout prevention efforts need to consider the interrelationships that drive dropping out (Barr, 1987; Catterall, 1986; Karp, 1988; Weber, 1986).

To date, countless causes and solutions at all levels of the educational system have been promoted. What is clear is that no single panacea has been found. Although there is a fairly large volume of research on why students drop out, much of it is inconclusive. A straightforward reading of the literature does not always provide obvious answers about which parts of the process are susceptible to policy manipulation.

A large scale review of the materials related to dropout prevention programmes was compiled by Morris, Pawlovich and McCall (1991). These authors concluded that there is consensus in the literature on many points. Generally, the effective programmes contain both a vocational component and a counselling component (Bishop, 1988; Flora, 1989; Hamilton, 1986; Radwanski, 1987; Weber, 1987, 1988) and take into account the individual learning styles of students (Perrin, 1990; Slavin & Madden, 1989; Manitoba, 1989 cited in Morris et al., 1991).

For the 15 to 18 year old, student intervention and school to work strategies have been suggested specifically while prevention strategies have been recommended for the elementary schools (Morris et al., 1991; Wilkinson, Frazer, Stewart & Ligon, 1989). Current research has successfully summed the strategies thought to be effective at different stages in the dropout process (see Morris et al., 1991). The literature suggests two distinct strategies: **intervention** and **school to work** strategies.

Intervention strategies (junior and senior high schools)

These strategies attempt to support students at risk through initiatives such as:

- alternative instructional programmes (Gerics & Westheimer, 1988; Poulos, 1986);
- specialized support services such as peer counselling (Wisconsin State Department, 1989);
- mentoring (Sherman,1989; Education Development Center Digest, 1990; Intercultural Development Research Association, 1989; Smink, 1990);
- tutoring and counselling (Raby, 1990; Lawton & Leithwood, 1988);
- curriculum changes to increase relevance and attendance monitoring (Desnoyers & Pauker, 1988; Radwanski, 1987; Lawton & Leithwood, 1988);
- establishment of school programmes for at-risk students (Weber, 1987);
- individualized learning and attention to learning styles (Weber, 1987, 1988);
- small class sizes (Sherman, 1987);
- focus on basic skills (Radwanski, 1987; Sherman, 1987); and,
- community based involvement and intervention (Grossnickle, 1986; Lawton et al., 1988; Witenberg, 1988).

School to Work strategies (prior to and after leaving school)

These strategies attempt to persuade students to stay in school by strengthening the relationship between schooling and employment, and making school more relevant:

- cooperative education programmes (Morris et al., 1991); and,
- work orientation workshops, vocational counselling (Bishop, 1988; Rabi, 1990; Sherman, 1987; Flora, 1989; Weber, 1987, 1988; Weber & Sechler, 1988) career awareness programmes.

While the above mentioned programmes have been implemented effectively, a more holistic approach has been developed in response to a 100 per cent dropout rate on the Alexander reserve in Alberta. This programme on the Kipohtakaw Education Centre was a community controlled, education programme designed to take life-context into consideration. Five years after implementation of this programme, dropping out was virtually eliminated (Bopp, 1986 cited in Gilmore & Smith, 1989). As Gilmore and Smith conclude:

> ...if we raise our gaze from schooling as an a priori bounded entity, and look at academic careers in the larger context of life itself and the way life is being led, we will be driven to relocate the causes, the meanings and ultimately the problematicity of dropping out.(82).

Further, it has been shown that dropping out is not fundamentally a problem with schooling and can "never be addressed by simply tinkering with the way we do schooling" (Gilmore & Smith, 1989:82). Therefore, the suggestion is that the relationship between life context and academic path, in combination with out-of-school political strategies, is implicitly and explicitly required to facilitate school success.

Conclusion

Most adolescents growing up in Canada today have a high probability of maturing into responsible adults (Dryfoos, 1990). A certain group, however, have only limited potential for becoming productive adults because they are at high risk of encountering problems at home, in their communities, or in school. These adolescents are growing up without a hope of enjoying the advantages that go with adulthood. They are not learning the skills necessary to participate in the educational system or to make the transition into the labour force. There is a widening gap between achievers and non-achievers. A subgroup of young adult learners is appearing who are functionally illiterate, disconnected from school, depressed, prone to substance abuse and early criminal activity (Mensch & Kandel, 1988; Dryfoos, 1990). There is a growing concern in Canada about the future status and work potential of these high risk youth — the school dropouts. This concern has been intensified in direct proportion to the awareness that at least one-quarter of future labour force requirements will not be met unless these ill-equipped young people are helped. Wolman et al. (1989) state that:

> Although finishing high school today does not guarantee a person success, to refuse such an opportunity to get the basic academic skills that this institution provides may have negative results for both the dropout and the society in which s/he lives (p.6).

To add to the problem of studying the dropout in society, the research on the topic holds three central weaknesses. First, researchers often do not distinguish underlying causal factors from those merely associated with dropping out. That is, some articles present characteristics of students who drop out but do not develop a causal model. Second, much of the literature describing who drops out treats dropping out as an event and not as a process and finally, there is very little data that considers the interaction between all of the factors that might contribute to dropping out (McMullen et al., 1988).

However, as outlined in the section on prevention strategies, a number of successful programmes are currently being implemented. These include prevention, retention and transition strategies as outlined in the Bloom model. Perhaps, then, the educational deficiencies that have resulted in limitations to individual success may be combatted for this group of "at-risk" young adult learners.

Native Youth

Introduction

In recent years, the media and the public have focused increasing attention on the educational system in Canada. Of particular concern has been the rate by which young people drop out of school before completing the education and training needed to compete in an increasingly technologically complex society. As a result, the provincial and federal governments have begun to develop programmes aimed at encouraging young people to remain in school. Despite the fact that Native youth are at greater risk of leaving school prematurely, little public attention has been paid to their needs.

In discussing the needs of Native[1] adolescents of secondary school age, it is essential to recognize that we are not dealing with a homogenous group. Despite attempts by the federal government to assimilate Natives into Euro-Canadian society, there still remains a remarkable amount of cultural diversity among Canada's Native peoples. While Native peoples face many common problems concerning their access to quality education vis a vis the dominant cultural groups in society, different Aboriginal groups encounter specific difficulties that vary geographically; for example, children from the North and more remote locations have different needs than those in southern, more populated areas (MacKay and Myles, 1989). Other factors that affect educational experiences include reserve versus off-reserve, Metis versus Status Indians; and factors related to the home environment. The purpose of this discussion is to highlight some of the difficulties faced by Native children and their families with regard to education and to present a general description of Native students in the 15 to 18 year old age group.

Socio-economic Characteristics

Native peoples are one of the most economically and socially disadvantaged groups in Canadian society. On average, they earn 50 per cent or less of the national average income and they experience unemployment rates in their communities that range anywhere from 35 to 90 per cent. They are also three times more likely than most Canadians to die of violence. They exceed the national average by five times for the number of children under the care of the state (Bowier, 1991). While this is true of status Indians residing on reserves, less reliable data exist for Native peoples living in urban settings. However, research suggests that Native peoples in the cities often encounter even greater difficulties than those in rural areas (Lithman, 1984; Haddad et al., 1991).

When compared with the general population, a large discrepancy exists in secondary school completion rates; Native students fall significantly below the national average (Jones, 1988; Hull, 1990). In general, as the socioeconomic status of parents rises, the proportion of Native children leaving school prior to grade 11 decreases. (Children of Native parents with a relatively high socio-economic status are twice as likely to have completed high school.) The social conditions on many reserves fall far below national standards. Reserves have high welfare rolls, suffer from high unemployment rates and insufficient employment opportunities. The demand for housing in many cases is greater than availability, resulting in overcrowded and dilapidated dwellings. Native people experience an infant mortality rate that is 60 per cent higher than the national average and have a shorter life expectancy than other Canadians (Indian and Northern Affairs Canada, 1980). While the participation of Native youth in secondary schools has increased over the past several decades, all of these factors affect their ability to continue to the point of graduation. We now turn to an overview of the experiences that Native children encounter in the educational system.

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[1] The terms Aboriginal, Native, Native peoples, and Indians have been used interchangeably throughout this review. This is problematic in the sense that it ignores the cultural and other differences between Native peoples, and thus implies homogeneity. It is also with consideration that many still refer to themselves as Indians. However, the use of these terms is not intended to draw distinctions between status and non-status Indians.

Experiences in School

The experiences of Native people in the educational system appear to differ significantly from non-Native students. Under the Indian Act, the federal government is responsible for status Indian students between the ages of seven and sixteen (which has been interpreted by IANAC as a responsibility for elementary and secondary education). However, since the end of World War II, the federal government has gradually transferred its responsibility by entering into agreements with provincial governments or school boards enabling Native children to attend school off the reserves (Frideres, 1987). Frideres suggests that one result of these actions is an inferior education for Natives. He cites several reasons for this including: an educational system ill-equipped to deal with Native students because it reflects the values of middle class White society, in turn forcing Natives to behave in ways that will enable them to fit into this model. Consequently, many Native children find the educational experience an unpleasant one. The transfer of Native education from federal to provincial governments or school boards has also led to fewer opportunities for the parents of Native adolescents to have a voice in the education of their children.

The poor self-perception of Native children enroled in non-Native schools is, according to Native groups, part of the explanation for the large number of dropouts (Pauls, 1984; Wall and Madak, 1991). Native students have a completion rate approximately one-fourth the national average. Many feel that Native controlled schools would be able to offer curricula more relevant to Native experiences as well as provide role models and a better learning environment. In turn, this would lead to higher completion rates for Native students. A recent study suggests that Native students are less likely to drop out of Native controlled schools, although they are usually behind their counterparts in provincial schools in terms of academic achievement for comparable grade and age levels (Hull, 1990). The differences in achievement between the two groups of students has been attributed to the relatively meagre resources that Native controlled schools have. If they were given more, it is likely that the differences between the two school systems would diminish (Cameron, 1990; Hull, 1990).

Many frustrated Native students quit after two years in secondary school. In some cases, this occurs because of unresolved (and often unacknowledged) cultural and value conflicts such as the competitiveness that is noted in the ranking of students' marks and in the lack of a school curriculum that positively reinforce the student's self-perception.

The issue is prominent among the reasons cited for the failure of Native adolescents in provincially governed schools. The use of Native languages in the educational process is one way in which Native youth are able to gain self-esteem, as well as awareness of and pride in their own culture and its uniqueness (Chan, 1984; Hull, 1990). In some cases students come from areas where their Native tongue is dominant and have to fly in to high school where they encounter the English language for the first time (MacKay and Myles, 1989). Traditionally integrated schools have tended to view Native language and culture as a barrier to a meaningful education (Bowler, 1991). One obstacle to providing Native language and culturally relevant programmes is the shortage of trained Native language teachers. Another is of curricula not being reflective of Native needs (Indian and Northern Affairs Canada, 1980; Henley and Young, 1991).

Some argue that incorporation of Native students into integrated schools can be very successful in educating Native youth providing special programmes and services are developed and offered to fulfil their needs. Teachers also need to be aware of the differing backgrounds of Native students (Couture, 1987; Elofson & Elofson, 1988). However, it is promising to note that there is now greater availability of Native counsellors for Native adolescents, a factor which may help resolve this problem (MacKay & Myles, 1989).

Before completing the discussion of Native students' experiences, an examination of non-status Indian and Metis should be included. It is much more difficult to identify these groups and to measure their success because they live in an urban environment and the identification of their ethnic background relies primarily on self-identification; no official records are kept of their progress.

In terms of the Metis and non-status Indian students, one study indicates that girls are at greater risk of dropping out than boys. The researchers, pointed out that such girls are at greater risk of dropping out than boys because they experienced a greater number of problems in their personal life (MacKay & Myles, 1989). There are a number of factors contributing to the high dropout rate of Native youth; these include family environment (e.g., whether they live with one parent or two, parents' educational achievement and the family's financial situation), students' self-concept, (their desire to finish or quit school), past academic performance, self-confidence, their relationship with the teachers and the extent to which they are interested in or like the curricula.

Aspirations/Post-Secondary Plans

Research indicates that Native students do not begin their high school careers with the intent of skipping classes or eventually dropping out but rather that they develop these behaviours only after they have had some experience in the system. This suggests that there are factors present in the secondary school experience that lead students to shift their initial positive attitudes toward school to negative ones. The differences between on-reserve and off-reserve Native students in this area are negligible (MacKay and Myles, 1989).

Instructional Policies

A number of initiatives have been taken in an attempt to reduce the dropout rates for Native students. An increased emphasis on parental involvement in the education of their children has been recognized by some in the education system as having a positive effect. One difficulty in achieving this goal in integrated schools is the fact that there is little communication between the school and the home, making it very difficult for Native parents to have a voice in the educational process. Notwithstanding this difficulty, many school boards have recognized the need for Native parental input if the negative educational experience is to be counteracted (Dawson, 1988). For many Native students, the school may be the first prolonged exposure to persons outside their family or culture. This fact alone places tremendous responsibility upon the school to ensure that these initial school experiences are positive and relevant for the student. The school environment must be an extension of the home environment. The one must complement the other so that the students, and their parents, feel right in being there.

Native students need to have their culture and language recognized as legitimate and to be provided with positive reinforcement for their distinctiveness (Campbell, 1983). Some provinces that have large Native student populations have begun developing curricula targeted at these students. These curricula are often formulated in consultation with First Nation communities and are in some cases quite extensive, e.g., involving course-books, courses and programmes (Henley and Young, 1991). Unfortunately, many of these programmes have not been in effect long enough to measure their effectiveness.

Related Institutions

The involvement of parents in the educational process is emphasized throughout the body of literature examined for this review. If Native students' education is to be a success, Native parents must be involved and encouraged to participate in their children's education and be given at least some control over the delivery of programmes and services and decision making processes.

Native parents must also recognize the need for education and encourage their children to pursue it. When this has occurred, along with other factors, the number of Native students graduating has increased significantly.

Applications

In examining the needs of the 15-18 year old youth at risk groups, one must recognize that Native youth comprise much more of an extreme at-risk group than any other group in Canada. Native students experience the highest dropout rates in Canada. It is estimated that between 70 percent and 80 percent of Native people do not complete high school compared to 36.1 percent of non-Aboriginal Canadians (Ross, 1991).

In their study, **Native Student Dropouts in Ontario Schools**, Mackay & Myles (1989) indicate that there are a number of factors which contribute to the successful retention of Native students in provincial secondary schools.

First Nations whose youth maintain a high graduation rate appear to be those whose Chief and Council have put the education of their children as a top priority on their agenda. They communicate these views to members, the school board, the schools and the larger non-Native community. Their negotiating committees successfully conclude tuition agreements including the provision of services which meet the needs of their youth.

The appointment of Education/Social Counsellors who are in regular direct contact with students, parents and school principals have contributed to the retention of Native students in schools. These counsellors provide guidance to parents, encourage at-risk students to remain in school, and praise those who are performing well. They attempt to raise the level of educational expectations among band school children and provide incentive schemes for students who attend school on a regular basis.

School boards in whose schools Native students experience high graduation rates are those that seem to address the needs of both on- and off-reserve students either through addenda to the tuition agreements or as part of their own services. They deal with such matters as after school transportation, to allow Native students to participate in extra-curricular activities, Native language and study courses, and language development across the curriculum. The Boards also maintain direct and open channels of communication among the senior executives of their boards and the Chief and Council of the bands and/or groups responsible for education. They also ensure the appointment of principals who are sympathetic to the implementation of board policies favourable to Native students.

Schools with high Native student retention and graduation rates are headed by principals who are actively involved in promoting strategies that maximize the academic success of their students and encourage their teachers and support staff to participate in the promotion of these strategies. These principals are familiar with the communities from which their Native students come and with the available support agencies such as Friendship Centres and Youth Employment Centres.

Students who have encountered academic success attribute the following factors to remaining in and graduating from high school.

- The support they received from their family and community. Some cited either verbal or emotional support, concrete help with course selection or homework, support by example (i.e., parents or other relatives who had persisted by remaining in school held interesting and/or well paying jobs).
- The recognition of the importance of educational qualifications to obtain an interesting and well paying job. Students employed strategies of self-help such as goal setting, self-discipline, and persistence in their attempts to achieve their goals. One student described his attitude towards school and graduation in this way:

  > What helped me most to reach graduation was wanting it bad enough. If I hadn't wanted it, no matter who talked to me or no matter what they said to me wouldn't have had any influence.
  > (Mackay & Myles:94)
- Most of the successful students reported receiving positive support from teachers, counsellors and often administrative staff. In the Northern areas, Native counsellors were very frequently mentioned as important sources of support by both on-reserve and Metis/off-reserve students.
- Successful students were able to find at least something they actively liked about school, be it a particular subject, sports, friends, teachers, etc.
- Successful students were able to overcome the very obstacles that caused other students to drop out. These include: temptation to skip class, homework, shyness, unstable home environment, pressure from friends to drop out, boring teachers, boring subjects, and inflexible school rules.

Following their study on Native student dropouts in Ontario, Mackay & Myles made 42 recommendations for action or change based on suggestions made by participants of the study and on their own observations. The Ontario Ministry of Education has implemented seven of these recommendations and is in the process of reviewing others. The Ontario Ministry of Education has made available 1.25 million dollars for 14 pilot projects, beginning in September 1992 and lasting for three years that allow teachers as part of their professional development training, to become familiar with and maintain contact with their Native students' communities and in particular with their students' parents. Teacher trainees will be given the opportunity to intern in both band and federal schools as well as provincial secondary schools with high Native enrolments. In the area of service, school boards will be encouraged to form partnerships between themselves and the First

Nations, to work with either Friendship Centres in urban communities and to become sensitized to Native issues, Native education and Native affairs. They will also be encouraged to work with band councils, Native education authorities and groups of parents to foster understanding and cooperation.

A committee comprised of Native people from eight Native nations, representatives from major provincial organizations, the Ministry of Colleges and Universities and the Ontario Ministry of Education who are involved with teacher education training, are in the process of developing strategies to increase the number of Native secondary school teachers.

Beginning in September 1992, Native language courses can be taken in place of French as a compulsory credit course. The Ontario Ministry of Education has also introduced a new Native studies guidelines publication providing a perspective on Canadian history from a Native point of view. Moreover, units showing how the Native studies perspective can be incorporated in other subject areas such as family studies, geography, English, dramatic arts and visual arts is also outlined.

Working with the Department of Indian Affairs and five Native Cultural Centres, the Ontario Ministry of Education is in the process of establishing an information clearing house for teaching materials and other resources prepared for Native language and culture courses in provincial elementary and secondary schools.

It has been suggested that affirmative action be taken to increase the number of professional counsellors of Native origin employed by provincial school boards and secondary schools. Two to three of the fourteen projects address this particular area and plans are being made to hire Native counsellors to work with students at the elementary and secondary levels.

The Ontario Ministry of Education is funding a pilot project involving the establishment of a group home by September, 1992 in Sioux Lookout, which will accommodate approximately 25 - 30 Native students from remote areas. The project will make provisions for counsellors and tutorial assistants to help these students adjust to living away from their communities. Arrangements will be made for each home to be supervised by a set of house parents who will provide for the needs of the students, monitor behaviour, and act as role models.

Conclusion

In reviewing the literature on Native education, one quickly becomes aware of the relative lack of available empirical studies examining the needs and nature of Native education in Canada. This dearth of information, especially when compared to the amount of information available on non-Natives, should be placed within the larger context of Native issues in Canada. The lack of adequate funding for Native schools is perhaps the single greatest problem facing First Nations. There has been a steady erosion of financial support on the part of the federal government for Native education over the last twenty years which has also often involved the provinces. While the federal government has made great strides in transferring its responsibility for Native education to First Nations, the provinces have been very reluctant to take up the slack. Essentially, the provinces have viewed Native education as a federal responsibility and therefore something that the federal government should pay for. Unfortunately, Natives have been the ones to suffer in the cross fire as various levels of government have passed the buck; even though in some instances, specific agreements have been signed among the federal government, the provinces and/or local authorities to fund Native education.

Among the difficulties experienced by Native students are the effects of geographic location. Students from more remote communities are often required to travel a great distance from home, usually for the first time, to attend high school. This can prove to be a very lonely experience, especially when one considers the fact that most of these students come from very small, close-knit communities. Many students grow very lonely and decide to return home at the first opportunity, discontinuing their education at that point. Perhaps one way to deal with this difficulty is to recruit more students from the same community to a given school and encourage more contact between students and families during the school year. Another is to encourage distance education technology to provide secondary education in the community. Such a project has produced excellent results through the Wahsa Distance Education Centre in Sioux Lookout.

Native students in urban settings face somewhat different problems from those in more remote regions. Racism can often sour the educational experience for Native students. Moreover, a lack of understanding of Native culture, on the part of educational officials often results in a curriculum that fails to serve the needs of these students. This problem is not unique to urban settings and is also encountered by First Nations in the North. More Natives have to be encouraged to become teachers and role models for their people.

In sum, more attention has to be paid to the needs of Native students. This includes, but is not limited to, providing greater levels of funding for Native schools, allowing for greater input into the educational process by parents and developing curricula that are more responsive to the needs of this group.

Finally, educational policy and funding have to be flexible enough to take the needs of each Native community into account. In so doing, such a policy model would recognize that what works and what is needed in one Native community may not apply in another.

Immigrant Students

Introduction

There is a widely held belief in Canada that formal education is the right of each individual regardless of race, class, gender or other socio-economic and socio-demographic differences. Evidence supporting this idea - equal opportunity to the educational process - has been reflected in laws such as those relating to compulsory school age and public funding through taxes and other social programmes (Martin & MacDonell, 1982). One of the most important ideological premises contributing to this opportunity for all is the a priori belief that education is a liberating force leading to the equalization of opportunities in an ethnically stratified society, especially for the socially disadvantaged (Li, 1988).

However, despite increasing public expenditures on education, varying degrees of school participation rates of ethnic groups (Forcese, 1986; Hunter, 1986), and the gradual acceptance of ethno-cultural heritage instruction (McDairmid & Pratt, 1971; Martinello, 1976; Munro, 1975), studies have found that for some groups, equal educational opportunities in Canada are limited. Family background, education, and occupational status have been repeatedly identified as determinants affecting educational and occupational attainment of immigrant children (Boyd, 1985; Anisef and Okihiro, 1982). This has led to the suggestion that the educational system tends to perpetuate social inequality rather than equalize opportunities (Li, 1989). Among the ethnic groups, Blacks and Aboriginal peoples are the most disadvantaged (Li, 1988; Martin & MacDonald, 1982).

The ethnic background of students has been documented as an important factor in influencing their educational plans (Anisef, 1975). Moreover, Clifton's (1981) findings have suggested that teachers' assessment and expectations of their students may not exclusively be based on performance. Status rankings of various groups in society at large also play a significant role. This implies that in a society where educational credentials are crucial to social mobility, persons of some ethno-cultural backgrounds are likely to be disadvantaged as a result of possible teacher bias. In spite of efforts made by various school boards to assure "accessibility" to educational opportunities, it is imperative to examine why immigrant youth fail to capture equal educational opportunities. Are there any discernible impediments in the education process which have disadvantaged these students?

Ethnic Variations in Educational Attainment

Census data in the last two decades have shown that there are ethnic variations in educational attainment (Li, 1989; Richmond, 1990). Among the ethnic groups, persons of Jewish or Chinese ethnic origin are about two to three times more likely than the national average to have completed a university education.

Black youth are also slightly above the national figure of 10.28 per cent (11.87%). However, this relatively high educational attainment among some ethnic groups should not be interpreted as supporting evidence of inherent ethno-cultural differences or validating equal educational opportunities. It reflects Canada's selective immigration policy since 1967, when the blatantly racial/ethnic based selection criteria were eliminated, allowing persons to enter Canada as immigrants on the basis of education, skills, and occupational qualifications (Li, 1988; Richmond, 1990; Samuel, 1990). For example, about 91 per cent of Black Canadians and 86 per cent of Chinese Canadians are foreign-born, illustrating that many of these persons may have immigrated to Canada with prior professional and technical training.

Despite the relatively high educational attainment of these immigrants, there are discernible differences in income, showing the magnitude of inequality associated with ethnic membership (Li, 1988; Richmond, 1990; Verma & Basavarajappa, 1989). Even after adjusting for differences in schooling, age, nativity, gender, class, industrial sectors, and the number of weeks worked, Census data have indicated that people from Black, Chinese, and Greek communities face the most discrimination in employment because of their ethnic origin (Li, 1988). When comparisons are made between those from traditional source countries (U.K., U.S.A., and Western Europe) and those from Third World countries, Richmond (1990) found that in 1985:

> among those who arrived during 1975-1979, standardized employment incomes for non-traditional source countries were 21.2 per cent below those of traditional immigrant groups .... The situation of Caribbean immigrants in 1980 is a specific case in point.... A detailed analysis of the economic experience of Caribbean men and women in Canada (based on 1981 Census data) revealed a pattern of absolute and relative deprivation.... well educated Caribbean immigrants had greater difficulty achieving an occupational status and income comparable with their qualification.... Those with university degrees had greater difficulty than similarly qualified immigrants from other countries. (p. 151)

The findings clearly indicated that educational attainment per se by some immigrant groups is not similarly rewarded. Furthermore, discrimination in employment income and occupational status (underemployment) may directly affect the motivation of their children to capture the educational opportunities in Canada. Regardless of how willing the parents are to bear the hardship of adjusting to Canada, the negative impact of inequality in employment income and downward occupational mobility may be more significant for some immigrant youth than others. This gives credence to the findings of Cheng et al. (1989) who indicated that when compared to White and Asian students, Black students were more likely to come from a low SES background and were less likely to be enrolled in advanced levels of study. The low SES background of Black students may be a result of their parents' marginalized employment in Canada's ethnically stratified labour market (Richmond, 1990; Richmond & Mendoza, 1990; Henry & Ginzberg, 1988). They may lack role models from their own ethnic group to provide incentives to continue in the school system. Moreover, a significant proportion of these youth may be overwhelmed by a sense of familial obligation to enter the labour market rather than increase the burden on an already strained family income. This may result in a decision to leave the school system prematurely which may be in contradiction to their parents' primary intention for emigrating - to provide their children with an opportunity to acquire post-secondary education.

This interpretation has been found to apply to some Indochinese youth, despite the commonly accepted stereotype of Asian immigrants' positive attitude towards education. Studies (Lam, 1983, 1985; Chan, 1987; Samuel, 1987; Woon, 1987) have indicated that despite their educational attainment and qualifications, under-employment and significant downward occupational mobility are common experiences of these refugees. It is not uncommon for Indochinese youth to "quit school" and "work for the well-being of their families." Moreover, their parents' negative employment experiences may have an impact on their decision to leave the school system. They believe that it is more rewarding for them to enter the labour force than stay in school, especially if they conclude that educational attainment, as in the case of their parents, does not provide a means of achieving higher occupational status.

There is evidence indicating that students' levels of study and performance, other things being equal, are strongly influenced by parental presence (Cheng et al., 1989). This has a direct bearing on Black students because Black families have the lowest percentage of "having both parents at home" (44%), largely as a result of Canada's immigration policy. Studies (Bolaria and Li, 1985; Ramcharan, 1982) have documented that most female migrants from the Caribbean were allowed to enter Canada under the auspices of the domestic worker programme in the 1970s, regardless of their marital status and other qualifications. In other words, similar to the experiences of Chinese immigrants before WWII, they were deprived of leading a normal family life. It was only after the implementation of a somewhat liberalized immigration policy which emphasized family reunification, that domestic workers were given the opportunity to sponsor their family members to enter Canada. The years of separation pose a tremendous problem for youth who must cope with a new family life in a changed socio-cultural milieu and a new educational system where their previous experiences may not be validated. Ramcharan (1982: 41) documented that "many of the behavioural problems that Canadian school teachers find with West Indian children result from the cultural and psychological shock experienced by these children in their new environment."

When these children are placed into a school environment which is very different from home, they may be held back from promotion or receive negative school reports. Walker (1982) found that:

> Ironically, because they are English speaking they are expected to understand, and teachers may be less patient than with non-English speaking students. There are, however, sufficient differences in accent and dialect to cause difficulties for West Indian children which are mistakenly attributed to a low level ability. (p. 20)

Although de-streaming is being introduced into the Ontario school system, a sense of alienation is yet to be completely allayed for many West Indian students. The marginal employment opportunities available to their parents combined with a strong need to help the family, lead a substantial minority of West Indian youth to drop out.

Integration of Immigrant Students into the School System

There are many programmes in the school system designed to remove barriers that hinder the social and psychological integration of immigrant children. For example, based on assessments made by school officials, these children are often placed in special education classes or English as a Second Language (ESL) classes to assist them in overcoming initial linguistic barriers. The intent of these placements is that these children will subsequently achieve levels of linguistic and academic competence similar to non-immigrant children. However, the assessment may largely ignore the experiences of immigrant students. Because immigrant students come from diverse economic, cultural and academic backgrounds, a deeper understanding of the students' traditions, learning styles, family structure, morals, values and principles; is invaluable in designing programmes that will meet their learning needs. This is particularly crucial for designing programmes to assist refugee youth in making the transition to Canadian society, given the traumatic experiences of being uprooted and spending years in refugee camps (Duran, 1990; Freire, 1990). "Distracted by" and "pre-occupied with" something else while in school may be inadvertently interpreted by teachers as indicators that these students lack the motivation to learn. Goldblatt (1990) found that some teachers encourage refugee students to simply forget their past experience. Denying the traumatic migration experiences of refugee youth may hinder rather than facilitate their integration into the Canadian formal education system.

Education in Canada is more interactive, more verbally oriented and less formal than in other countries. The changeover to these conditions is not always easy for those immigrant students who are often accustomed to a more competitive atmosphere or strict discipline. Furthermore, the emphasis in their former education on providing "correct" answers may result in their hesitation to engage in classroom discussions or to actively interpret issues for themselves (Walker, 1982). For example, Chinese students from Hong Kong often experience difficulty in adapting to the style of learning in Canadians schools because educational goals in Hong Kong place an emphasis on practicality and teachers are under pressure to teach a great deal of content in a short time to prepare the students for competitive public examinations. Consequently, students are used to absorbing as much factual information as possible and to pursuing logical reasoning more than creative thinking. When a Chinese student enters a Canadian school, s/he does not always know how to handle his/her "freedom" in a more relaxed atmosphere. Neither does s/he know how to do a project or write a lengthy report on a subject of his/her own choice. If immigrant students are not properly prepared and oriented to cope with a different learning environment, they may lag behind and eventually drop out.

Rather than realizing and appreciating differences in the learning process of the immigrant students, teachers may interpret those differences in a cultural mode (i.e., immigrant students cling to traditionalist ideas and historical cultures). In fact, the goals and experiences of Canada's immigrant youth do not mirror traditional cultures. For example, contemporary immigrant children from Hong Kong know little, if any, about the material on traditionalistic Chinese rural villages. Erroneous teacher perceptions may serve to accentuate the sense of marginality experienced by immigrant youth in school and impede their successful transition.

Conclusion

The characteristics and qualities of life for students dropping out of schools prematurely have been documented in other parts of this report. Regarding immigrant students, the literature identified the complex set of forces in motion operating in a variety of school situations. Solutions to the problems depend on whether the right questions have been raised.

The cogent questions that should be raised with respect to education in the context of Canada's immigration and race/ethnic relations include: Are we concerned primarily with ways to assist immigrant youth to "fit into" the existing educational system? Conversely, are we concerned with why and how the education system has failed to meet the needs of students identified with different immigrant (ethnic) groups?

One effective way to deal with the first question is reflected in the recent establishment of schools in Hong Kong employing teachers who are trained in Canada and with curriculum based on the current Ontario's high school programme. It is expected that if students attending these programmes immigrate to Canada, they will be prepared for and familiarized with the Ontario educational system. Since the patterns of immigration are well known to policy makers, requiring would-be immigrant youth to go through an equivalent educational process in their home countries would be an effective strategy for assuring their adaptation.

However, if the problems facing immigrant youth in our educational system are related to institutional and systemic discrimination, programmes such as heritage language and ESL may temporarily deal with the problem, while distracting our attention from finding appropriate solutions.

Token programmes are not sufficient to eliminate the alienation that leads some immigrant or visible minority students to perform poorly or to leave the education system prematurely. Measures to actively foster a culturally rich school environment, in all aspects of the educational process, are needed.

These include:

- integrating a culturally diverse perspective in texts and curriculum;
- hiring teachers and counsellors who culturally represent the student community and who can act as role models to both immigrant and Canadian born students;
- developing testing methods that are free of cultural bias;
- encouraging involvement from the students' communities in work co-op programmes, mentoring and curriculum development;
- educating teachers about racism, and the effects that discrimination may have on student performance; and,
- peer mentor programmes for recent immigrant students.

To facilitate the integration of immigrant youth to Canada's educational system, we should realize that ethnic diversities cannot be adequately addressed in the context of multiculturalism, multicultural programmes, or cultures of immigrants. Problems that are rooted in the educational system have to be thoroughly examined.

Employed Students

Introduction

> The part-time job. For some high school kids, it's a boon - a chance to make money, learn new skills, find a career. For others, it's a bust. (Johnson, 1980, p.50).

The number of full-time high school students who work part-time has steadily increased over the past four decades within Canada and the United States. In 1980, approximately 44 per cent of American boys aged sixteen and seventeen were working while in high school, compared to 27 per cent in 1947 (Greenberger & Steinberg, 1986). Recent studies estimate that 75 to 80 per cent of all students are employed at some point during their high school years prior to graduation (Tanner & Krahn, 1991; Ainsworth, 1990; MacArthur, 1989; Steinberg, Bradford, Cider, Kaczmarek & Lazzaro, 1988). One reason for the student worker phenomenon is the rapid growth of fast-food and retail industries (Lowe & Krahn, 1991; Green, 1990). For the most part, adolescents are employed in unskilled, low-paying positions with fairly systematic routines (Lowe & Krahn, Forthcoming; Stone, 1990). Student workers have now increased their time commitment to their part-time jobs from an average of 14 hours or more per week (56% of student workers) in 1970 (Greenberger, Steinberg, Vaux, and McAuliffe, 1980) to an average of 20 hours per week in 1990 (Lillydahl, 1990).

Advocates of the student work experience claim that working enhances education, facilitates socialization, and eases entry into full-time employment. They also argue that "rather than being distracting or detracting, high school employment may actually foster behaviours or traits in students that promise academic success" (D'Amico, 1984, p.154). Green (1990) argues that the role of work experience is not only to facilitate the transition from school to work but also, to provide "structure for involvement in family and school-related activities," and to provide "an arena outside of home and school in which to gain social experience, and/or the material rewards needed in order to have an independent life with peers" (p. 432). Similarly, Lowe & Krahn (Forthcoming) have revealed that 85 per cent of students, surveyed in three Canadian cities, report feeling purposeful as a result of working. Student employment may foster feelings such as higher self-esteem and independence amongst adolescents.

In contrast, Greenberger and Steinberg (1986) feel that educators should "jump off the work experience bandwagon" and view it as a "mixed blessing." Steinberg (1982) believes that the benefits of part-time employment for high school students have been greatly overestimated. Several researchers have investigated the effects of part-time work on high school students, and found that students who work more than 15 to 20 hours per week suffer academically and/or risk academic failure in comparison to those students who work fewer hours or not at all (Ainsworth, 1990; Stern et al., 1990; Barton, 1989; Steinberg et al., 1988; Meyer, 1987; Schill, McCartin and Meyer, 1985). Steinberg and Dornbusch (1991) suggest that "a significant drop-off in school performance occurs after 20 hours of weekly employment" (p. 308). Excessive employment may cause students to lose interest in school and decrease their time commitment to school and family activities (Finch and Mortimer, 1985). There is "an emerging consensus among researchers...that the negative effects of employment are linked to how much, not whether, a student works" (Steinberg and Dornbusch, 1991, p.304).

The following review focuses on research done on the effects of part-time employment on high school students in both Canada and the United States. Since there are very slight differences between American and Canadian adolescent workers and there are fewer research studies done in Canada, it is assumed that the American research conducted on the effects of part-time work on high school students is representative of Canadian students as well. Students who work part-time are defined by the following categories: age, gender, family socioeconomic status/structure, rural/urban residence, ethnicity, and the decision to work. As well, life experiences which may be affected by the adolescent work experience, such as family relations, attitudes towards work and school, assignments and homework, extracurricular activities, teacher relations, attendance, dropout rates and deviance, are reviewed. Working students' needs and learning styles are interpreted through studies on the effects of part-time work. Studies done specifically on the differences between working and nonworking students' learning styles were not found. Lastly, programme implications and policies are addressed.

According to Lillydahl (1990), the increased trend to part-time employment among adolescents is distinctly an American phenomenon. The proportion of student workers, their commitment towards their jobs, and "the social origins of youngsters who work are not duplicated elsewhere in the world today" (Greenberger & Steinberg, 1986, p.22). The researchers base their claim on a 1978-79 survey conducted by Reubens, Harrison, & Rupp (1981) which stated that approximately 66 per cent of all sixteen and seventeen year old American students were working in comparison to only 37 per cent in Canada.

However, recent Canadian data reveal that 57 per cent of all Canadian youth are employed full time or part-time, and 42 per cent of all full-time students aged 15 to 19 years are working part-time (Posterski & Bibby, 1988). In a 1988 survey of 15 York Region high schools in Ontario, 72 per cent of students in basic-level programmes reported having part-time jobs, compared to 51 per cent in 1984 (Ainsworth, 1990). In 1990, East York educators discovered that 62 per cent of their secondary school students worked part-time in comparison to 49.2 per cent in 1986 (Ainsworth, 1990). Metropolitan Toronto educators estimate that at some schools, 70 per cent of students have part-time jobs and that many of them are working 20 to 30 hours per week (Ainsworth, 1990). It appears that the student worker phenomenon is not only occurring in the United States, but also in Canada.

Age and Gender

The mean age of adolescents who start work is 12 years; it is assumed that first-time jobs include household tasks such as babysitting, taking out the garbage, and mowing the lawn (Mortimer, Finch, Owens & Shanahan, 1990). More senior students aged 17 to 19 years (grades 11 & 12) work part-time in comparison to younger students aged 15 to 16 years (grades 9 & 10) (Johnston, 1991; Steinberg & Dornbusch, 1991). Steinberg & Dornbusch (1991) report that 56 per cent of students in grade 12 work 20 hours or more per week in comparison to only 13 per cent of students in grade 10. Meyer (1987) states that older students (17-19 years) can work more hours per week than can younger students (15-16 years) before academics are affected: "The ability to work longer hours without adversely affecting grade point averages could be a function of the adolescent's increasing age and maturity" (p. 141).

Adolescent jobs appear to be gender specific. Slightly more teenage boys than girls work in the United States (Steinberg & Dornbusch, 1991; Yamoor & Mortimer, 1990; Greenberger & Steinberg, 1986), and in contrast, slightly fewer boys work than girls in Canada (Lowe & Krahn, Forthcoming; Johnston, 1991; Tanner & Krahn, 1991; Posterski & Bibby, 1988). Recent studies indicate that the gap between boys' and girls' employment rates are narrowing (Mortimer, Finch, Owens & Shanahan, 1990). Male students work more hours per week than female students in both Canada and the United States (Posterski & Bibby, 1988; Lewin-Epstein, 1981). However, more female student workers report taking lower level service sector jobs such as clerical, sales, or service occupations than male student workers who do skilled labour (Lowe & Krahn, Forthcoming; Tanner & Krahn, 1991; Mortimer, Finch, Owens & Shanahan, 1990).

Family Socioeconomic Status/Structure

Students from lower income families have more difficulty finding part-time jobs during the school year than students from intact (two-parent), middle socioeconomic status (SES) families (Meyer, 1987; Greenberger and Steinberg, 1986; Schill, McCartin & Meyer, 1985). Those lower SES students who have jobs, tend to work a greater number of hours per week and have lower grades than the middle SES students (Meyer, 1987). The lower SES students spend their earnings on necessities for themselves and their families (Pritchard, Myers and Cassidy, 1989). Hence, these students cannot compete with others who spend their wages on "peer-valued activities," nor can they afford to spend a great deal of time at work due to their poor academic performance (Pritchard, Myers & Cassidy, 1989; Meyers, 1987). Students who "spend heavily for necessities were from families with fewer resources, as evidenced by lower socio-economic status, lower education levels, one-parent status, renter status, and lower family income" (Pritchard, Myers & Cassidy, p. 720). Pritchard, Myers and Cassidy (1989) studied the economic socialization of 1,619 employed students in the United States. They discovered that 74 per cent of the student workers did not contribute their earnings to their family, and 60 per cent spent most of their money on "buying and doing things" (Ibid, p. 711). Similar studies show that less than 10 per cent of all working students contribute a substantial portion of their earnings to family income (Greenberger and Steinberg, 1986, p. 8). Fifty per cent of the students in Pritchard, Myers & Cassidy's (1989) study reported no savings towards college funds. The researchers identified student "savers" as those who came from higher SES and educated families and who reported "an internal locus of control," which reflects a positive attitude towards school and the future (p. 715). The student "discretionary spenders" were identified as those who were also from higher SES and educated families and who had a positive attitude towards the acquisition of money, "possibly because they are oriented towards immediate gratification" (p. 717). These students had lower grades and evaluated their jobs as more important than school. The student spenders who purchased necessities were from lower SES and educated families, and reported "an external locus of control and lower orientation towards success in the workplace" (p. 717).

Rural/Urban Residence

The differences between rural and urban student workers have not been researched thoroughly. Stern (1990) has compared a mid-city sample of students with a regional group and found that they differ in their ethnic make-up. Approximately 98.5 per cent of the students in the regional area were White in comparison to 58 per cent in the mid-city area. Other groups in the urban area included Blacks, Hispanics and Chinese. The student workers in the regional area reported higher motivation to do well in school and work. The researchers attributed this result to the region's traditional positive work ethic. For example, there were more professionals than operators in the regional area. Green (1990) has researched the effects of part-time employment in rural areas and has not found any deleterious effects. The researcher states that there is considerable occupational diversity among the students, and this factor may have contributed to the results. Although the differences between rural and urban workers have not been researched thoroughly, it appears that their experiences may be different.

Ethno-cultural Background

Although there is a mixture of ethnic groups among student workers, the majority of adolescent workers are White (Steinberg & Dornbusch, 1991; Green 1990; Lillydahl, 1990; Manning, 1990). Mortimer, Finch, Owen & Shanahan (1990) have found that White boys and girls were more likely than non-Whites (Black, Hispanic, Asian) to report informal work as their first jobs; perhaps it is a cultural phenomenon for White parents to pay their children to do household chores. Overall, the student worker's ethnicity does not appear to be a factor in the effects of part-time work. Steinberg and Dornbusch (1991) conclude that "the negative correlates of excessive employment (with very few exceptions) cut across age, socioeconomic, and ethnic groups" (p. 313).

The Decision to Work

Students' decisions to work do not appear to be primarily motivated by the economic need to contribute to family income (Lillydahl, 1990), rather they are motivated by the need to participate "in an increasingly consumption-oriented youth culture" (Lowe & Krahn, forthcoming, p. 1). For instance, in an NBC Broadcast of Mainstreet on April 15, 1988 (cited in MacArthur, 1989), students stated that "they'd rather settle for learning less and earning more" (p. 4). Teenagers have developed an "inflated interest" towards the acquisition of luxury goods (Greenberger & Steinberg, 1986, p. 22) and perhaps, a deflated interest towards school, classwork, and teachers (Johnston, 1991). Lowe and Krahn (forthcoming), who reviewed data taken from three Canadian cities, have discovered that over 70 per cent of employed students work for the money. They conclude that the student worker phenomenon is due to the youth culture, which provides "the immediate benefits of a disposable income" (p. 8).

American student surveys indicate that up to 80 per cent of student workers are motivated to do so for the personal financial freedom, and not for the work experience (Barton, 1989; Greenberger & Steinberg, 1986; McNeil, 1984; Berryman & Schneider, 1982). Students with money become accustomed to immediate gratification and tend not to work hard at their studies (Johnson, 1980). The workplace has become an attractive option for teenagers in comparison to the educational system, and this apparent increase of student materialism has meant that "their orientations towards education and career expectations have shifted towards a declining commitment to the idea that knowledge is valuable for its own sake and an increasing adherence to the idea that education is a useful means of obtaining other valued goals: above all, a good (read high-paying) job" (Greenberger & Steinberg, 1986, p.22).

Meyer (1987) surveyed 4,317 American students, and found that students who had higher grades, college aspirations, and were from higher SES families, decided to work fewer hours. "For the college bound, the benefit to be gained from working more hours is perceived to be less than the benefit of increased study time" (p. 145). Lowe & Krahn (forthcoming) have revealed that more students with lower grades and lower educational aspirations reported having a part-time job in comparison to other students. The researchers explained that these "less academically inclined" students may feel more alienated from school and thus have a tendency to seek employment (p.12). Also, the workplace may offer these students an opportunity to exercise authority, which is not always offered within the classroom (Greenberger & Steinberg, 1981).

Effects of Part-time Work

Student workers have been identified as an "at-risk" group. Research has shown that students who work 20 hours or more per week suffer academically or risk failure in comparison to those students who work fewer hours or not at all. Many researchers have discovered that working students experience time constraints when juggling life events such as family, school, recreation, and peers, with their employment schedules. Researchers warn against intensive employment, because negative effects have been detected after students reported working more than 15 to 20 hours per week (Steinberg & Dornbusch, 1991; Lillydahl, 1990). Recent research (Lillydahl, 1990) suggests that students who work moderate hours per week may not suffer academically, and that study and employment may be complementary.

In response to Greenberger and Steinberg's 1986 study which warned about the negative consequences of part-time work among high school students, Green (1990) has found that the negative stereotype is not justified. The researcher believes that students are capable of balancing their work experience with their personal, familial, and educational responsibilities as well as with their social priorities. The debate as to whether or not part-time employment positively or negatively affects students' academic performance, behaviour, socialization, and/or family life still continues.

Family Relations

Williams and Prohofsky's (1986) American survey examined the effects of teenagers' employment on their satisfaction with their family life. The researchers found a negative relationship between teenagers' satisfaction with family life and the number of hours worked per week while attending school (significant at the .01 level). They state that although the relationship may be weak, those students who worked 20 to 30 hours per week reported less satisfaction with their home life.

Greenberger, Steinberg, Vaux and McAuliffe (1980) surveyed 531 grade 10 and 11 students in California and found that the amount of time students spent at the workplace reduces the time spent at home with family. For example, student workers ate dinner with their family members less often than did nonworkers. The researchers concluded that even though adolescents spend less time with family members as a result of the employment hours, "the quality of family relationships remains largely unimpaired" (p.196). On the other hand, Steinberg, Greenberger, Garduque, Ruggiero & Vaux (1982) revealed that female workers who worked longer hours (more than 20 hours per week), were not as close to their families as female nonworkers. Gottfredson (1985) found that male student workers reported lower levels of dependency towards their parents than the male non-workers, but the researcher did not report any other negative effects of part-time employment on students' behaviour (delinquency), commitment to school and homework, or attachment to parents.

It is claimed that the "erosion of parental authority" over student workers has occurred as a result of student workers' increased time commitment to their employment hours (Greenberger and Steinberg, 1986, p. 203). Students who work longer hours tend to have more autonomy from their parents, and are monitored less closely by parents than students who work fewer hours (Steinberg & Dornbusch, 1991). Time allocation studies show that working students trade off time and/or take small amounts of time from a variety of non-instructional activities such as family events, housework duties, and sleep time (Steinberg & Dornbusch, 1991; D'Amico, 1984). Manning (1990) has found that the most prominent disagreement between parents and working adolescents is the assigning of household chores. The researcher indicates that the more hours worked per week by a student, the less likely that student does chores in the home.

Recent studies indicate that the majority of parents, favour their adolescent child working, and are not concerned about the effects of part-time employment on academics (Phillips & Sandstrom, 1990). Approximately 80 per cent of the parents surveyed felt that their child's job had no effect on their attitudes and behaviour at school. Moreover, the majority of parents allowed their children to control their own money. They felt that financial freedom gave their children a greater sense of self-respect, self-confidence, and independence.

Attitudes Towards Work and School

The National Assessment of Educational Process (NAEP) survey of approximately 29,000, grade 11, American students found that working students were more attached to work and less attached to academics as measured by programme enrolment, courses taken, and post-high school expectations (Barton, 1989). Approximately 25 per cent of the vocational students in the survey worked 20 hours or more per week in comparison to 12 per cent of academic students. As well, 30 per cent of the students who worked more than 25 hours per week claimed that they would begin working immediately following graduation in comparison to 14 per cent of the nonworkers. Barton (1989) labelled this student interest towards each institution as the "attachment to academic subjects" versus "attachment to the labour force" (p. 8). Thus, students have a "weakened attachment to school" as a result of longer working hours (Lowe & Krahn, forthcoming, p. 3).

McNeil (1984) observed American high school students in classrooms and around their lockers and discovered that working adolescents had much more enthusiastic and animated discussions about job duties, pay raises, and major purchases, and less substantive discussions about school work and class topics. The students' enthusiasm suggests that they had a more positive attitude towards their workplace than their school. Their work experience seemed to be stimulating and rewarding whereas school work seemed to be boring and unmotivating for the student workers.

MacArthur (1989) revealed a moderate, yet significant, relationship between employment status, grade point averages, and students' study habits and attitudes. The researcher found statistically significant differences between grade point averages of workers and nonworkers and between study habits and attitudes of workers and nonworkers. Brown & Holtzman's (1967) Survey of Study Habits and Attitudes (SSHA) was utilized to examine the American students' interest in learning. Sample questions from the SSHA questionnaire are as follows: 1) "I keep all the notes for each subject together, carefully arranging them in some logical order," and 2) "Some of my classes are so boring that I spend the class period drawing pictures, writing letters, or daydreaming instead of listening to the teacher." The researcher suggested that students with lower grade point averages also had slightly poorer study habits and attitudes towards school. MacArthur (1989) concluded that students who work are "bound to experience conflicts between obligations at work and responsibilities at school" (p.10).

Johnston (1991) investigated the relationship between employment status among high school students and their attitudes towards school, classwork and teachers in a Toronto area school. Student attitudes were measured by Epstein and McPartland's (1978) Quality of School Life Scale (QSL), which assessed student Satisfaction With School (SAT), Commitment To Classwork (COM) and Reactions To Teachers (TCH). The researcher found that student workers had a lower commitment towards classwork (COM score) than nonworkers, and that female nonworkers also had a more positive attitude towards their teachers (TCH score) than female workers who worked 16 hours or more per week. The results suggest that female workers may be more sensitive towards teachers, and that the number of hours worked per week appears to affect students' commitment towards homework and their reactions to teachers. O'Brien & Feather (1990) state that positive attitudes towards work depend on the quality of employment; i.e., students who find jobs that "match their skills...improve on measures of affect and personal control" in comparison to unemployed students (p.161). The working youth experiences a greater internal locus of control, and as a result, develop a positive attitude towards the work experience. On the other hand, students who take on jobs that are not challenging become more depressed and dissatisfied with life as well as with their work experience.

Assignments and Homework

Students may experience time constraints when combining school and work, which results in an insufficient amount of time dedicated towards studying (D'Amico, 1984). Student workers must learn to accommodate school and after-school activities, which usually means that "work is distributed over more, rather than fewer, days of the week and includes week nights" (Greenberger & Steinberg, 1986, p.22). In a survey of approximately 1577 American high school teenagers, McNeil (1984) investigated student-perceived feelings of conflict between specific school demands and workplace demands. Sixty per cent of the student workers (685 students) felt that their job interfered with doing required reading and written assignments; and over 50 per cent (570 students) stated that it interfered with staying alert in class. Thus, the energy levels (physical development) of adolescents are affected by the time constraints they experience when juggling work and school responsibilities.

D'Amico (1984) reviewed data from the National Longitudinal Surveys of the Labour Market Experience of Youth, which surveyed 12,000 American students from 1979 to 1982. The researcher found an inverse relationship between the number of hours worked per week and hours spent on studies; the greater the hours worked per week, the fewer hours spent on studies (D'Amico, 1984). For instance, White female and male students who worked 20 hours or more per week reduced the time they spent on homework and White males and minority females, who worked 20 hours or more per week, decreased their free time at school.

Barton (1989) reviewed data from a 1986 National Assessment of Educational Process (NAEP) study which surveyed 29, 000 grade 11, American students. The study revealed that students who worked 21 to 30 hours per week were less likely to do their homework in comparison to those students who only worked 10 to 15 hours per week or not at all. Although the research did not indicate how much homework was assigned per week, Barton (1989) suggested that "students' investment in academic subjects and homework and their school attendance might go together into a trajectory that plays itself out in more hours of work; alternately, reversing the causal assumption, more hours of work may divert students from academic subjects, homework, and school attendance" (p. 9).

In a national survey of approximately 4.2 million American students aged 15-19 years, Lewin-Epstein (1981) reported that senior male students, who worked more than 20 hours per week, spent less time on homework, and close to 20 per cent less time watching television than students who did not work. The senior male students who worked 22 to 34 hours per week spent an average of 3.0 hours per week doing homework and 13.6 hours per week watching television in comparison to non-working senior male students who spent an average of 4.1 hours per week doing homework and 16.3 hours per week watching television (Lewin-Epstein, 1981).

Extracurricular Activities

Berryman and Schneider's (1982) student-survey discovered that those students who had given up their jobs prior to the study reported effects such as interference with school activities as the major reason for quitting their jobs. The survey consisted of 1,277 American secondary school students who were enrolled in 14 different high schools. When asked to state the most important reason for giving up their jobs, approximately 38 per cent of the students stated that their jobs interfered with extracurricular activities in comparison to 12 per cent who stated that their classwork had suffered as a result of working. It would appear that the students were more concerned about the effects of their jobs on their participation in school activities than they were with the effects on their academic achievement. In Lewin-Epstein's (1981) report, senior, male workers also reduced the amount of time spent on activities such as pleasure reading, and increased time spent with friends. The researcher concluded that there was "both a departure from school-sponsored extracurricular activities and a more central role for work amongst senior students" (Lewin-Epstein, 1981, p. 56).

Teacher Relations

Frequently, students use their jobs as an excuse for not doing their homework or for falling asleep in class. McNeil (1984) found that conflicts between a student job and school responsibilities have resulted in lowered expectations in the classroom. Teachers in the study complained about students who were "unable to complete assignments, [were] sleepy during class, selecting easier electives and avoiding upper level courses...in short, setting the wrong priorities regarding their time and energy" (McNeil, 1984, p. 9). According to the teachers, who had personally conducted interviews with their students, the employed students placed more value on working several hours per week than completing their assigned school work. Teachers admitted to accommodating this conflict by reducing homework and making the requirements for assignments less demanding. They were tired of dealing with student workers who were unable to complete assignments or were sleepy during class. One teacher specifically stated that he missed having students overachieve in his classroom and "now that effort goes into pleasing the manager at McDonald's" (McNeil, 1984, p. 42).

The students in McNeil's (1984) study reported that their instructors did not acknowledge their jobs. Approximately two-thirds of the employed students said that their teachers "never" reduced the workload despite the number of working students in the class. Another 74 per cent stated that their instructor never reduced assignments and 69 per cent stated that their instructor never made assignments easier. In addition, 45 per cent of the working students felt that their teachers never related their jobs to school. Only 36 per cent of the working students felt that their teacher might allow them to hand in assignments late because of their workplace duties (McNeil, 1984). The teacher-student conflict may create negative feelings within the classroom, and consequently students may view the workplace as "hassle-free" in comparison to "demanding" teachers.

Attendance, Dropout Rates & Deviance

Studies conducted in the United States reveal that part-time employment may have an impact on high school students' commitment to class work, school involvement, attendance, dropout rates, and deviant behaviour (Steinberg & Dornbusch, 1991; Barton, 1989; Steinberg, et al., 1988; McNeil, 1984). Students who work 25 hours or more per week were reported as having a higher rate of absenteeism (missing 5 or more days per month) in comparison to those students who worked fewer hours per week (Barton, 1989). The same study found that students who work 11 to 15 hours a week, did not miss any more school days than did their non-working classmates. Thus, "working does not appear to be associated with increased school absence until the hours of work become quite long" (Barton, 1989, p.9). Longer working hours appear to have a negative effect on students' school attendance; however, absenteeism rates may be influenced by the combination of several aspects of a teenager's life, such as poor attitudes towards school, deviant behaviour, and/or out-of-school experiences (family, peers, and work).

Greenberger, Steinberg & Vaux (1981) linked job stress to absenteeism. The researchers found that as students were increasingly exposed to meaningless tasks, poor environmental conditions and conflict within the workplace, they were also more frequently missing their classes. They linked a student's increasing rate of school absenteeism with increasing conflict within the family or school life, and exposure to work stress as consistently related to alcohol and marijuana use.

Steinberg & Dornbusch (1991) surveyed approximately 4,000 American students from rural, suburban, and urban secondary schools who varied socioeconomically and ethnically. The researchers found that students who work more hours per week "earn lower grades, spend less time on homework, pay attention in class less often, exert less class effort in school, are less involved in extracurricular activities, and report higher levels of mind wandering in class, more school misconduct, and more frequent class cutting" (p.307). Students in the above survey who worked fewer than 10 hours per week, reported higher self-esteem levels in comparison to those students who worked 20 hours or more per week. The researchers state that "the relationship between employment and psychosocial functioning is quite modest, and not a direct function of hours of employment" (p.311).

D'Amico (1984) has found that intensive employment (more than 20 hours per week) increases the likelihood of generally dropping out of school. Students become less interested in attaining an education, and more interested in working. Ekstom, Goertz, Pollack, & Rock (1987) observe that student dropouts are slightly more likely to be working for pay, working more hours per week, and earning higher pay during their sophomore year (grade 10) than non-dropouts. In addition, the same dropouts state that their jobs are more enjoyable and more important than school in comparison to those students who have completed their high school years. Research suggests that workers are more likely to drop out of school than non-workers (Ekstom, et al., 1987).

Researchers such as Hotchkiss (1986) acknowledge that time spent at work is time that cannot be spent at school or on homework, but have not found any deleterious side effects on students who work during high school. Hotchkiss investigated the effects of working part-time on five types of outcomes: absence, tardiness, academic performance, participation in extracurricular activities, and career expectations. The three year study, conducted in the United States, did not find any statistically significant relationship between job status and the above mentioned types of outcomes.

Similar to the notion that working is beneficial to high school students is the belief among educators that working can decrease delinquency among youth (Greenberger and Steinberg, 1986). In contrast, however, Ruggiero (1984) hypothesized that working, rather than deterring delinquency, actually may increase some types of deviant behaviour. For instance, Johnston (1991) observed that student workers are more likely to use offensive or vulgar language than nonworkers when responding to a questionnaire on whether or not they liked or disliked school. The behaviour may be dependent upon the quality of the student's work experience, which includes relationships with adults and fellow workers.

In a comparative study between workers and nonworkers in the United States, Ruggiero (1984) demonstrated that exposure to work experience predicts students skipping classes, coming into school late, and lying about the completion of assigned school work (unpublished doctoral dissertation cited in Greenberger & Steinberg, 1986). The study found that student workers "perform more deviant acts involving money, substance use, and school than nonworkers" (Ruggiero, 1984, p. 125). Steinberg & Dornbusch (1991) have found that American students who work 20 hours or more per week, report higher rates of drug and alcohol use, delinquency, and psychological and psychosomatic distress (p.308).

In a study of 212 American and student workers, Ruggiero, Greenberger, & Steinberg (1982) found that 62 per cent of the workers reported committing at least one of nine acts of deviance at work - ranging from lying about illness to stealing things from the workplace. The student self-report questionnaires indicated that approximately 32 per cent of the working students called in sick when not, 30 per cent gave away items or services, 18 per cent stole items from work, and 17 per cent worked under the influence of drugs or alcohol. Ruggiero (1984) links work exposure to the frequency of alcohol, marijuana, and tobacco use among high school students. Many teenagers do not need the money they have earned to purchase the necessities of life and thus their earnings may be channelled into deviant activities such as gambling or buying and selling drugs (Greenberger & Steinberg, 1986).

Tanner & Krahn (1991) suggest that the lack of parental control over adolescent behaviour may influence the degree of adolescents' deviant behaviour. The researchers' study of student workers in three Canadian cities, Edmonton, Sudbury, and Toronto, revealed a moderate amount of reported deviance and a tendency for students who were from the smaller urban centre (Sudbury) to report illegal activity. The researchers do not attribute the students' reported deviant behaviour to their discretionary income, but to the fact that working students are more likely to interact with friends who engage in deviant behaviour (p.299). The researchers state that adolescent deviance may be the result of the interaction of a host of variables - employment status, disposable income, peers and parental control.

Applications

The phenomenon of student effort is increasing. Although a debate as to whether employment has a positive or negative effect on students has not been fully resolved, educators can actively involve the work experience with the learning experiences of students. The quality of work experience affects a student's autonomy. A positive work experience increases the likelihood that a student will experience higher self-esteem and confidence. Through programmes such as co-op and apprenticeship programmes, educators can increase the chances that students who want to work will find employment that requires and teaches skills and knowledge.

Learning styles theory suggests that people prefer different styles and environments for learning. The interest and stimulation experienced by students in their jobs may reflect a preference for some students for an active participatory environment.

Researchers have recommended that teachers and educators caution high school students against the negative effects of part-time work. Educators should continue to monitor the differences between high school student workers and nonworkers. Teachers should monitor student workers' study habits, attendance and physical well-being (fatigue) within the classroom context. In addition, teachers can encourage students not to work so many hours per week and emphasize the importance of completing assignments/homework and attending classes. Student workers should learn to be more responsible when managing both work and school.

Teachers should attempt to keep parents of adolescent workers updated on their children's progress. The majority of the parents in the studies approved of their children's work experience. Parents of working students should be informed of the possible negative effects of part-time work and encourage their children to work responsibly (ie. only work the maximum number of hours per week that seem manageable to an individual) so that they can balance both school and work successfully.

Conclusion

The literature review reveals that the effects of part-time work on high school students is generally negative. Student workers' academic performance decreases significantly after 20 hours of work or more is reported (Steinberg & Tann Dornbusch, 1991). The working student is not always satisfied with school, classwork and teacher demands in comparison to job duties and employer demands. Some students appear to be much more enthusiastic about their workplace and as a result, place greater importance on their jobs than on their academics. Working students achieve a greater sense of autonomy and self-confidence, and are therefore motivated to work because of their personal financial freedom. They are accustomed to immediate gratification which accompanies their newly acquired purchasing power and consequently, the delayed gratification of completing a secondary or post-secondary education may be a less attractive option for them.

Students who work longer hours per week appear to be more interested in their time commitment to their jobs in comparison to their time commitment to their classwork or homework. Working students experience time constraints (work demands versus school demands) which may contribute to increased student - teacher conflicts within the classroom and possibly cause students to seek employment rather than continue their education. Adolescents who work more than 15 to 20 hours tend to have higher absentee rates and report deviant behaviour in comparison to students who work fewer hours or not at all.

The positive effects of student employment should not be overlooked. Some students benefit from the work experience cognitively, socially, and emotionally. For instance, students can learn skills and concepts in the workplace as well as how to interact with adults professionally. The financial rewards and job responsibilities create a greater sense of independence and self-confidence for student workers.

However, the effects of part-time employment, whether positive or negative, are dependant upon a host of factors including: age, gender, family background, ethnicity, residency, attitudes towards work and school, time constraints, life events, school responsibilities, and behaviour.

Gifted Students

Introduction

According to Pendarvis (1990) the gifted are those students who require differentiated educational programmes to recognize their potentially high ability or performance in any or all of the following areas:

1. general intellectual ability
2. specific academic aptitude
3. creative or productive thinking
4. leadership ability
5. visual and performing arts
6. psychomotor ability

A general overview of the literature demonstrates that the educational experiences of students identified as gifted, regardless of programming type, have tended to be positive. Despite this, gifted students have particular social, emotional, learning and vocational needs related to their giftedness. These youth are at risk of experiencing a number of difficulties if their needs are not recognized or understood by educators. Little information was available on students not in special programming, though they were generally described as underachievers with behaviour problems, dreamers and dropouts. This paper profiles gifted youth between the ages of 15 and 18, examining personal development, learning style and vocational needs in relation to type of ability, ethno-cultural and socio-economic background, and gender.

SES and Ethnicity

Most research on the gifted is on youth from the upper and middle classes (Cooley, Cornell, & Lee, 1991). There has been a failure to recognize giftedness in students from minority or economically disadvantaged backgrounds (Frasier, 1991; Van Tassel-Baska, 1989) female students and students from rural areas (Pendarvis, 1990). Current research supports Terman's 1925 estimate that gifted students from disadvantaged backgrounds have only a 1 in 150 chance of being recognized as having high ability (Pendarvis, 1990). Cooley, Cornell, & Lee (1991) suggest that giftedness is not a quality particular to certain children, but a social process involving parents, teachers and psychologists as well as the student.

Access to gifted programmes for minorities does make a difference in their school performance. In a 1991 study by Smith, LeRose & Clasen it was shown that of minority students included in special gifted programmes none left high school early, yet nearly half of equally able minority students who remained in the regular classroom ended up dropping out. The literature suggests a high dropout rate, especially among bright students from minority groups, when their needs are not being met in high school (Mulcahy et al., 1983; Smith, Lerose, & Clasen, 1991) Appropriate programming could reduce this dropout rate. Recognizing the wide variation in kinds and amounts of environmental stimulation could result in greater inclusion of minority students (Frasier, 1991). Encouraging input and involvement of the local communities in both programme planning and assessment of students could prove helpful (Mulhacy, Wilgosh, Crawford, & Watters, 1983).

The effect of bias on the performance and self-perceptions of students from minority groups is of great concern, although less attention is paid to the matter in the research literature on giftedness. Some teachers may let students know in subtle ways that high achievement is inappropriate and unexpected (Jacob, 1972). It has been shown that students from minority backgrounds may perceive some conflict between their minority status and their high achievement (Cooley, Cornell & Lee, 1991). The attention paid to docile students with a strong work ethic leads Howley (1986) to suggest that superior academic potential is being confused with non cognitive traits of middle class compliance.

Even when not specifically dealing with the issues of under-representation of minority and disadvantaged students, much of the literature reviewed cited their subject groups as coming from middle to upper class homes, with well educated parents. Other papers did not specify the cultural or economic backgrounds of the subjects. Given the existence of very few studies on minority students in special programmes, one should assume that the populations discussed in the literature reviewed are predominantly White middle class urban young adults, unless indicated otherwise.

Frasier (1991) listed some commonly used solutions to the under-representation of disadvantaged and culturally diverse students in gifted programmes;

- soliciting nominations from persons other than the teacher;
- using checklists and rating scales specifically designed for these populations;
- modifying or altering traditional identification procedures;
- developing culture specific identification systems;
- developing programmes to eliminate experiential language deficits prior to evaluation;
- using a matrix to collect and weigh data from multiple sources; and,
- modifying assessment procedures by providing students with instruction before administering testing.

As these methods alone have not proved sufficient in solving the problem, Frasier added that it is important to recognize the wide variation in kinds and amounts of environmental stimulation from families with different backgrounds. She suggested that attention be paid to characteristics of home environment in addition to parental occupation. Educators can investigate verbal interactions between parents and children, expectations of parents, relationships between parents and children, discipline and control strategies and parental attitudes toward education. It is important to focus attention on these students, not just to fit them into the existing paradigm, but to develop a paradigm that accommodates them along with the students for whom it already works. Test scores should be de-emphasized. Educators should look instead for behavioural characteristics such as use of language, quality of questions, problem solving strategies, and breadth and depth of information. Frasier suggested the use of multiple assessment procedures, including objective data from a number of sources, along with a case study approach, in the context of individual characteristics, with decisions made by a team of qualified individuals.

In their discussion of gifted education for the Inuit, Mulcahy et al. (1983) suggested some important factors in dealing with populations that differ significantly from the dominant culture. The involvement of the community in defining giftedness, setting goals and objectives while retaining Inuit values, and setting criteria based on historical and cultural realities is essential. Nomination forms developed on this basis should be valid, if clearly understood by the community and parents, and if language and wording are culturally relevant. Curricula should provide a variety of experiences to facilitate comprehension and concept formations about technology, ideas and processes in the modern world of both Native and non-Native people. The training of Native teachers and aides from a local context would have a significant impact on Northern gifted education.

Wilgosh & Mulhacy (1983) recommended that all classroom students be included in the enrichment experiences. Because of the limited number of gifted children in small isolated communities, the interactive factor should not be ignored. They suggested Renzulli's Enrichment Triad and Revolving Door Plan,(1977) and a mobile enrichment unit to provide resources and support to a number of different small communities.

Gender

Female students are also under-represented in high school gifted programmes. In the research literature on education there is a good deal of attention paid to the experiences of gifted girls, with many studies focusing on them or including an equal representation of boys and girls, controlling for gender, and examining common and differing traits. Unfortunately, girls still do not experience this attention within the classroom. Although as many girls as boys are identified as gifted at an early age, somehow, by the time they reach high school the presence of girls in gifted programmes has seriously decreased (Maker, 1986).

Females experience more conflict concerning the social implications of giftedness (Kerr, 1985, 1988), and in integrating family and career aspirations (Dolny, 1985; Drews, 1965; Carisse, 1971; Culver & Doherty, 1976). They must also deal with negative attitudes of educators (Leroux, 1988) and reduced opportunities for fellowships, awards, and organized activities (Rodenstein, Pfleger, & Colangelo, 1977).

Strong positive action is needed in high school to educate both boys and girls about the changing roles of females to counteract the effects of socialization regarding sex role stereotyping. If girls do follow cultural expectations, their chances of being recognized as gifted are reduced. Their chances are further reduced by their penchant for precision or exactness, which may result in depressed scores on timed tests, their fear of risk-taking and making mistakes, low expectation of success, sex bias in test items, and masculine orientation of concepts in upper grades (Maker, 1986).

The attitudes of some educators may further hinder gifted girls' chances for achieving. Teachers were found to discourage risk taking and suppress creativity in girls (Leroux, 1988), and to encourage these qualities in boys (Leroux, 1988). In male-dominated areas such as mathematics, boys get more attention for the same performance level, and by high school, fewer girls participate in advanced mathematics and science classes, whereas fewer boys participate in advanced arts and aesthetic subjects (Leroux, 1988).

The particular biases and expectations of classroom teachers not only affect the chances of recognition of giftedness in students, but also their self-perceptions and achievement level. In the literature reviewed, this is discussed mainly in terms of gender bias, although it is also mentioned in relation to students from minority backgrounds. It is important to remember that teacher bias is connected to and works on students in conjunction with biases inherent in the school and social systems in areas such as curriculum, standardized tests, male gender and Western cultural orientation of texts, popular media, family, and social communities.

According to Dishart (cited in Winzer, 1990) girls are less likely than boys to find learning opportunities with a supportive teacher. Their chances of receiving high ability ratings increase if they show signs of altruism, idealism and selflessness (Whalen & Csikszentmihalyi, 1989), thus conforming to cultural expectations of females. In a study on adjustment to early college entrance, girls tended to have difficulty with teachers and rules if they showed high levels of independence and autonomy and performed better if they had a strong sense of their physical attractiveness (Cornell, Callahan, & Loyd, 1991). In an Ontario based study, Leroux demonstrated that female students tend to conform more to adult expectations, possibly increasing the probability of being affected by the biases and expectations of adults. This is of great concern, particularly at the secondary level where participation of girls in gifted programmes has drastically declined in relation to elementary and middle schools (Maker, 1986).

The gender bias also has a negative effect on boys. Although their likelihood of receiving high ability ratings is stronger than for girls, it increases if they demonstrate uncertainty about their level of sexual attractiveness (Whalen & Czikszentmihalyi, 1989).

Many suggestions were made of ways to offer girls the support needed to integrate their high achievement levels and future plans and to overcome negative sex role stereotyping. Rodenstein, Pfleger & Colangelo (1977) suggested some programme considerations (1977). Teachers can actively avoid allowing stereotypes to prejudice their interactions with female students. They can refuse to accept lackadaisical and irresponsible career planning. The opportunity structure of school and community can be changed, by continuing the identification process and ongoing guidance in the area of achievement motivation and assertiveness training through the years. The present reward structure can be assessed for encouragement of independent action, effort and achievement and strategies implemented for change if necessary. New avenues of expression and recognition can be designed, support structures of school and community changed and career related experiences integrated into the guidance programme. Formation of support groups could be encouraged and female role models identified, with contact encouraged.

Further suggestions include actively recruiting girls into advanced maths and sciences, making sure that contributions of women are acknowledged in every discipline, selecting non-sexist texts, requiring non-sexist language, alerting male and female students to the negative effects of sex role stereotyping, discussing alternative, equitable solutions to enable women to combine a career and family and analysing autonomous career paths versus those dependent on a man's career (Maker, 1986).

Shamonoff (1985) outlined a women's mentor project in which gifted girls in grades 4 through 12 attend weekly guidance meetings for self-esteem building, relationship development, and meet different women from the community who could act as resource people, mentors, and personal advisors.

Regarding the career aspirations of gifted students, there is much evidence to support the need for increased vocational counselling and support. Students need assistance in recognizing interests and skills, and require objective and subjective information about available avenues to develop them. Direct experience can provide opportunities to develop talents and pursue interests. Students need the opportunity to consider what it means to have a particular job, explore numerous life styles and be familiar with people who lead successful and full lives (Rodenstein, Pfleger & Colangelo, 1977).

School Experiences

A general overview of the literature suggests that regardless of programming type, gifted students were better off in special programmes. However, some types of programmes are considered better for students than others. Programming for gifted students includes enrichment, ability grouping and acceleration (Winzer 1990).

Enrichment tends to happen within the classroom, facilitated by the classroom teacher, often with the support of a resource teacher, offering students activities conducive to the use and development of a broad range of skills and greater depth of knowledge (Winzer, 1990). Renzulli's Enrichment Triad is widely used, although there is little research to support its effectiveness. The Triad includes three types of enrichment activities: Type I- general exploration; Type II- group training in developing thinking processes and learning skills; and Type III- small group investigations of real problems (Renzulli, 1977).

In the literature reviewed there was relatively little attention paid to secondary student experiences with enrichment programming. It has been suggested that enrichment may allow students to feel privileged, while still not realizing their potential and that while it may be of some benefit to children with high ability, it would equally benefit students at any ability level (Howley, 1986). Renzulli and Smith (cited in Winzer, 1986) recommended using the triad model within a Revolving Door Plan, involving students at all levels in and out of the programme, according to their level of interest, rather than their achievement. Such a programme could be used as a tool to identify talent and high ability in students missed by standard identification processes, while providing motivation to all students. This idea is strongly supported by Mulhacy et al. (1983), in reference to its applicability to isolated northern communities in Canada.

Independent study is one type of enrichment that is supported by education research. Gifted students tend to work well independently (Kerr and Colangelo, & Gaeth, 1988). Independent study provides an opportunity to explore an area of interest, promotes the ability to work alone, and increases research skills. It may not be suitable for some students who have difficulty working under limited supervision (Borthwick et al. 1980). This method has been successful in supplementing established curricula with individual student-oriented programmes, extending the classroom to the community, encouraging student-directed learning, fostering creative and scientific approaches to learning, developing effective and productive thinking, encouraging leadership development, and instilling a social conscience in students through roles as innovators, problem solvers, decision makers and evaluators (Dubner, 1984).

The research literature pays more attention to ability grouping at the secondary level. Ability grouping includes participation in special interest classes, special schools, and part-time study at special institutes. In a study by Clark & Zimmerman in 1988, art students said they preferred learning in a special summer institute with students with similar interests, challenging teachers, and opportunities for discussing their art work. They reported having good grades, social communities and supportive teachers in their regular school, but felt more inspired in their work, becoming more conscientious and critical in the special school. Scott (1985) found that the regular school system discouraged attention to the artistic talents of eleventh and twelfth graders. Mainstreamed gifted students and those in special schools in Calgary were equally well adjusted and successful. They had comparable skills and abilities and made equal progress in academic, social and personal domains. Those in the special schools, however, reported better social adjustment and satisfaction later, at the post-secondary level (Remizoff, 1989). Kammer (1986) shows that gifted students are more likely to attribute success to their own effort and show greater enjoyment of learning when they perceive encouragement for student involvement and responsibility.

Acceleration for secondary students encompasses advanced placement into higher level classes, telescoping (completing two years in one), taking courses for college credit, or entering university at an early age. Gifted students from low income brackets claim a positive attitude toward school when in an acceleration programme, stating they are offered opportunities unavailable at home or in the community. Yet, they also say that they see acceleration as a last resort, when there are no other programme options (Van Tassel-Baska, 1988).

There is much research in support of various types of acceleration. Advanced placement is particularly successful, having been shown to increase the motivation and aspirations of students (Van Tassel-Baska, 1986). Students also show a positive adjustment to early college entrance (Van Tassel-Baska, 1966; Robinson and Janos, 1986 cited in Cornell, Callahan and Loyd, 1991), although this is dependent on appropriate selection procedures and adequate support and counselling.

Van Tassel-Baska (Maker, 1986) pointed out that factors such as grouping, individualization, in-depth enrichment, counselling and discussion opportunities make acceleration positive. These aspects of programming contribute to the increase of student motivation and confidence, scholarship, and the prevention of mental laziness. On the other hand, it is argued that accelerated programmes are based on an assumption that giftedness is manifested in an ability to work quickly and cover more material in a shorter period of time. This assumption can lead to the neglect of in-depth understanding and diminish the fostering of talent in the visual and performing arts and in leadership areas. Acceleration can be misused to hurry students through a system that is not able to challenge them, and may only be effective in meeting the needs of students who have a proven ability to work successfully within the existing system (Maker, 1986).

Information dealing with the experiences of students with high potential who are not participating in special programmes is limited because these students are often invisible to educators and researchers. One group of students that has been identified and studied are underachievers. These are students who score highly on standardized tests, but do not demonstrate high achievement in school (Winzer, 1990). A number of possible factors contribute to underachievement. Redding (1989) suggests that this may be due to a mismatch between school curriculum and approaches to learning. Other possible causes include lack of effort, mental laziness, boredom, rebellion and conflict of interest (Whitmore, 1980). There is some evidence that bored students may entertain themselves or express their frustration by disturbing the class, challenging the teacher, or daydreaming (Winzer, 1990). Huryn (1986) suggests that students may react in this way as a consequence of teacher or systemic prejudice or because they are masking their abilities to be better liked by peers.

Peer Relations

High school students labelled as gifted seem to experience the greatest difficulty in their relationships with peers. In most other areas, they rate as average or above average. Many students see their giftedness as a social handicap, and elect to become social chameleons, masking their giftedness in situations where it is devalued and displaying it where it is appreciated (Huryn, 1986). According to Coleman & Cross (1988), male math and science students report disliking a reputation of being different, claiming they are cast into roles with limited acceptable behaviours. Students claim this effect is lessened when attending a special school. Popularity and social adjustment problems are reported to result in anger, depression and loneliness by a significant minority of students with high ability, although this does not seem to have a negative effect on self-esteem, insight or self-confidence. Gifted students tend to be more cautious of sexual behaviour and less certain of their attractiveness to the opposite sex (Whalen & Czikszentmihayi, 1989). While gifted students of both genders appear to be below the norm in social relationships, males are significantly lower than females, reporting less emotional harmony, struggling to cope with problems alone, and sharing less with friends (Leroux, 1988). Girls are more likely to conform to adult expectations, and are also more likely to see themselves as leaders than boys. Boys, on the other hand, care strongly about the attitudes of their peers, are more anxious about new situations and are more likely to see themselves as independent risk takers (Leroux, 1988).

According to Van Tassel-Baska (1989) students from low socio-economic backgrounds with high ability are influenced by carefully selected individual friends and not by peer culture. They claim to see friends as being supportive and inspiring.

Individual Characteristics

While most research tends to focus on traits common to students labelled gifted, a number of investigations examine differences based on gender, achievement level, and area of talent.

According to Tidwell (1980), high achieving teenagers generally had better self-concepts and higher self-esteem than other students, although these findings were contradicted by Milgrim & Milgrim (1976) (cited in Oslewski-Kubilius, Kulieke, & Krasney, 1988) who found high achieving students to have low levels of self-esteem. As shown in Killian's 1983 application of The High School Personality Questionnaire (HSPQ), gifted students showed normal levels of extroversion, anxiety, independence, creativity, neuroticism and leadership. Purley applied the California Personality Inventory (CPI) to gifted students. The findings showed that gifted students were better adjusted and had more favourable personality characteristics. They demonstrated high levels of dominance, social presence, self-acceptance, a sense of well being, responsibility, social maturity, tolerance, achievement, conformity and independence, intellectual efficiency, and flexibility (Oslewski-Kubilius, Kulieke, & Krasney, 1988).

Students who enrol early in college have been found to be well adjusted. A study of female early college entrants found that these students changed more in positive ways than did equal ability students not in accelerated programmes. They showed signs of greater personal growth, maturity, independence and self-direction. They declined in scores of femininity. Gifted non-accelerants became less independent and less self-sufficient over time (Cornell, Callahan & Loyd 1991).

High-ability Black students in special programmes show comparable levels of self-concept and academic self-esteem, although overall self-esteem seems to be less strongly correlated with academic achievement than for White students (Cooley, Cornell & Lee, 1991).

Female high achievers proved to be more excitable, impatient and unrestrained than males, according to scores on the HSPQ (Killian, 1983). They scored higher in self-rating, ability to cope, and utilize combined energy and ego strength (Leroux, 1988). They were more likely to accept their body image and to see themselves as leaders. They were also four times more likely to rate themselves as aggressive than boys, a difference they credited to the changes brought about by feminist consciousness raising (Leroux, 1988). They showed a tendency to adapt to adult expectations, placing high value on the ethics of caring and nurturing (Van-Tassel Baska, 1989).

Successful adjustment to school was shown to be related to support available. Girls tended to be flexible, finding support from a variety of sources, especially when one source was low, whereas boys relied heavily on peer support (Dunn et al., 1987). Scores on the HSPQ showed gifted boys to be more tender-minded, sensitive and over protected than gifted girls (Killian, 1983). The boys demonstrated less emotional harmony, tried to cope with problems alone, and shared less with friends, preferring to deal with their problems alone. They were insecure about physical development, anxious in new situations, and tense. Yet boys saw themselves as autonomous independent risk takers, whereas girls did not (Leroux, 1988).

Further differences that occur seem to depend on whether the gifted student's talents lie in the visual and performing arts or in academic areas. Artistically talented youth are shown to be within average achievement range but more tender-minded, reflective, internally restrained, self-assured, tense and driven than academic students. They tend to be more socially reserved, aloof, distant from society, radical, independent and unconventional than other students (Scott, 1985). Academically inclined gifted students, although also within the average achievement range, tend to be more excitable, assertive, enthusiastic, relaxed and composed and demonstrate greater leadership potential than do artistic students (Karnes, Chauvin and Trant, 1985).

Achieving and non-achieving gifted students also score differently on scales of personality and personal adjustment. In a paper comparing these two groups, Davids (1966) showed achieving boys to be higher in dominance, endurance, order and introspection, and non-achieving boys to have a high need for nurturing. High achieving males and females scored higher on self-control, selfassurance, maturity, achievement potential and intellectual efficiency than students with a low achievement level.

Learning Styles

Not only is understanding the learning styles and preferences of gifted students important for creating programmes and teaching strategies for the gifted, but it may also be useful to educators in developing the abilities of other students.

Evidence suggests that learning style is dependent solely on individual preference, without any distinction attributed to giftedness. Vigna (1983) found no learning style differences by gender and grade level or between gifted and non-gifted students, revealed in any environmental, emotional, sociological or physical characteristics. Vigna proposed instructional style with wide variation in cognitive style preference.

Other researchers have found marked differences in the learning style preferences of gifted compared to non-gifted students at the secondary level. It must be remembered that the subjects in the literature are those whom the system has recognized, and the styles attributed to gifted and talented learners do not necessarily represent those students who have been missed.

Rogers (1986) identified four types of cognitive style:

- learning style preference;
- field dependence/independence;
- locus of control; and,
- hemispheric specialization.

It has been shown that gifted learners at the secondary level prefer formal classroom design, less structure in learning materials, auditory mode presentations especially when combined with kinaesthetic modality, and the opportunity to complete tasks initiated (Dunn & Dunn (1979) in Rogers, 1986). They are more motivated, persistent, responsible for their own learning and willing to learn alone than are other students (Rogers, 1986). The underlying learning difference attributed to giftedness is independence of thought and action, leading to task oriented persistence and less need for content structure (Dunn, Dunn, & Price (1981) cited in Rogers, 1986). High ability students are shown to have a higher internal locus of control (Tidwell, 1980), and a desire for independent work which grows stronger as level of ability increases (Kerr & Colangelo, 1988).

There is a shift in high achievers towards visual modality strength and modality integration. Mixed modality may be the answer to their advanced achievement. Kinaesthetic and auditory learners are less likely to perform well on standardized tests. Gifted students, however, possess an evenness of function across modalities and coherence in behaviour orientation (Rogers, 1986).

In a study of gifted Black, White, Hispanic and Asian grade 5, 8 and 11 students it was shown that the gifted had higher verbal and mathematical efficacy and strategy use; the grade 11 students surpassed the younger students. It was found that students' perceptions of verbal and mathematical efficacy was related to their use of self-regulated strategies (Zimmerman & Martinez-Pons, 1990). Gifted readers and non-gifted readers at the high school level used the same reading strategies, but the gifted students tended to choose more effective strategies much more frequently and ineffective strategies much less frequently. The reading strategies preferred by gifted students included rereading, inferring, analysing structure, watching or predicting, evaluating and relating to content area. Non-gifted students had a tendency to be concerned with word pronunciation and to summarize inaccurately (Fehrenbach, 1991). Coleman & Shore (1991), studied a grade 11 advanced physics class and found that high ability students monitored and evaluated their own problem solving processes, made reference to prior knowledge, and made proportionately more correct metastatements than other students. Coleman & Shore cited thirteen findings in cognitive research on high ability students, leading them to conclude that gifted students use learning strategies similar to those of 'experts'. The findings show that gifted students:

- utilize existing knowledge bases differently (Sternberg, 1981);
- are more reflective and monitor themselves more accurately (Wong, 1982);
- take a longer time on higher order planning in problem solving (Davidson & Sternberg, 1984);
- readily and spontaneously generate a series of solution steps (Scruggs & Mastropieri, 1984; Sternberg & Powell, 1983);
- set priorities for direction to take (Wong, 1982; Turner, 1980);
- select a representation of information more like an expert (Coleman, 1977; Sterberg, 1981; Sternberg and Powell, 1983);
- have more insight skills (Sternberg & Davidson, 1981);
- are more able to recognize the problem to be solved (Coleman, 1977; Scruggs et al, 1985);
- employ more effective and elaborate learning strategies (Scruggs et al, 1985);
- are more able to distinguish between relevant and irrelevant information (Marr & Sternberg, 1986);
- decide which resources to allocate to a problem solving task (Shore & Carey, 1984; Wong, 1982);
- use more strategies, and are flexible in switching from one to the other (Devall, 1983; Shore, 1986); and,
- have greater memory skills (Meichenbaum, 1980; Woodrum, 1975).

Some other aspects of cognitive style include environmental preferences and brain hemispheric processing. In 1983, Cody studied students from grades 5 through 12. He found that average students, gifted students, and highly gifted students all differed in these elements. Average students preferred learning in quiet warm environments, late in the day and needed structure to learn. They indicated integrated and left brain processing. Gifted students preferred learning in the morning in a quiet atmosphere, with moderate temperatures and less structure. They used integrated and right brain hemispheric processing. The highly gifted preferred sound in the learning environment, cooler temperatures, evening, the least amount of structure, and they demonstrated more integrated, right dominant processing. These findings support Griggs & Price, (1982) who showed that gifted students in junior high school were more tolerant of sound, preferred learning alone, and were self-directed and independent.

There is an emphasis in education on techniques using left hemisphere, verbal and sequential processing. Left dominated learners prefer more formal design, more structure, less intake and more visual, less tactual and kinaesthetic learning. Right dominated learners dislike structure and are not adult motivated. Those with integrated hemispheric processing prefer the intake of food and drink while learning (Cody, 1983).

A student's background may affect his or her style of learning, although most of the literature focuses mainly on the effect of ability level. Van Tassel-Baska (1989) studied the learning styles of gifted high school students from low socio-economic backgrounds. It was found that they showed a high need for achievement, with some intrinsic, but mostly extrinsic locus of control. Positive encouragement is seen to be central in their learning. These students demonstrated strong introspection, a sense of how to handle problems and think for themselves, and strong feelings of self-efficacy and self-reliance. They reported a tendency to procrastinate and lacked planning and organization, despite high motivation. Their sense of ability was reinforced when they succeeded with little preparation.

Some differences between art students and academic students suggest a possible difference in learning style according to area of talent. It was found that grade 11 and 12 talented art students showed a higher commitment to aesthetic values and low commitments to social and economic values. Their intelligence scores were lower than those of the academically gifted, but art students were more opinionated, sceptical, questioning (Scott, 1985), and creative (Karnes, Chauvin, & Trant, 1985).

Ames and Archer (1988) explored the gifted student cognitive style response to performance goal and mastery goal orientation in the classroom at the junior and senior high school levels. It was demonstrated that in classrooms where performance goals were stressed, students were concerned with being judged able; ability was demonstrated through success. They concentrated on outperforming peers and often succeeded with little effort. They relied on social comparisons in rewarding self improvement and their sense of worth was threatened when they failed. In performance oriented classrooms, gifted students elicited attributional tendencies characteristic of maladaptive motivational patterns. This type of orientation is not related to learning strategies and task choices but to attitudes and perceptions of ability. There is a tendency to attribute failure to lack of ability and difficulty of work.

In a learning environment, where mastering a goal was emphasized, students reported using more self-instruction and self-monitoring strategies. They were more willing to pursue challenging tasks, felt positive about the situation, and exhibited adaptive attributional patterns. Students in classes rewarding self-improvement reported using more learning strategies. They perceived covariation between effort and success. When focused on a mastery goal, students did not blame the teacher when they failed, but did credit the teacher when they performed well.

Aspirations and plans

Although it seems that career choice may be easier for the gifted and talented, problems such as multipotentiality, gender expectations, family expectations and financial considerations may lead to conflict or confusion.

Moderately talented students have great difficulty with multipotentiality (Rodenstein, Pfleger & Colangelo, 1977). They score an undifferentiated profile on vocational interest tests leading to confusion and apathy in the face of overwhelming possibilities. For highly gifted students the problem arises with early emergence from school, resulting in prematurely narrow career goals. It appears that moderately and highly gifted students have different academic, personal and social needs, requiring differential programmes and services (Kerr & Colangelo, 1988).

The magnitude of integrating talent development and satisfying social and sexual growth may prompt talented teenagers to lengthen their period of maturation and delay full commitment to an adult career path. Erikson called this the Period of Maturation, in which young adults experiment with identities and even radically alter values and priorities (Whalen, 1989). Gifted students experience a dynamic conflict of values, tending toward the emerging values of self-realization, self-expression, interdependence and fullness of life, rather than traditional values of achievement, self-control, independence and full employment (Rodenstein, Pfleger & Colangelo, 1977).

In choosing careers, Kerr & Colangelo (1988) suggest that gifted students tend to pursue vocational majors such as business, pre-med and pre-law, engineering, and the physical sciences. There is a decline in enrolment in academic subjects and little interest in liberal arts, education, community services, languages, trades and agriculture. The lower the gifted student's level of ability, the more likely they are to choose a career in one of the latter areas. Certainty of major declines as level of ability rises, and more girls than boys express uncertainty.

Differences in career choice are further controlled by gender. Gifted males tend to aspire to engineering and physical sciences and females to the biological sciences. Males and females expressed an equal interest in law and medicine (Kerr & Colangelo, 1988). Many forces affect the career development of gifted young women. According to Rodenstein, Pfleger, and Colangelo (1977), talent is in conflict with cultural expectations; women are perceived to have less credibility in professional matters; there is less historical interest in developing the academic and professional interests of women; girls are exposed to fewer same gender role models, have reduced opportunities and are instilled with the fear that success in male dominated areas will be perceived as a loss of femininity.

Kerr (1983) showed that career guidance is needed and effective in raising the lower career aspirations of girls. Kirby and Kewlon (1986) demonstrated that gifted high school girls in Ottawa have high career aspirations and are opting for careers in mainly male dominated areas. Moreover, high ability secondary school girls in Toronto do not expect a conflict between their high career aspirations and plans to have a family, contrary to findings in many other studies. These students hold with the egalitarian attitude that their future spouses will share equal responsibility in the home. In fact it was 50 per cent of the male students who expressed the view that conflict for girls was expected, because they believed their future wives should be responsible for the household and family (Dolny, 1985).

The career aspirations of students are influenced by their families. In the case of art students, it was reported that there was more art in their homes, encouragement from their parents in career planning, and parent acceptance of a career choice in art. Education level of parents may have some effect on the goals of students. Artistically talented youth tend to come from homes where parents are semi-skilled, labourers or clerical workers. The academically gifted tend to have well educated professional parents (Scott, 1985). Adolescents from families with low incomes are faced with a possible contradiction in aspirations. Good grades are encouraged, but careers may be tied to family history. Even when they aspire to attend university, there may be problems in understanding the process of applying and entering, thus there is a need for appropriate information and assistance (Van Tassel-Baska, 1989).

Students indicate a need for vocational counselling (Kerr and Colangelo). This has proved to be useful in raising the career aspirations of girls, which are traditionally lower than boys (Leroux, 1988). Dayton and Feldhusen (1989) recommend access to vocational courses and programmes for students with high academic talent and vocational aptitude. Mentor programmes with adults from various professions and field study courses exploring the real nature of various jobs may be useful in helping students make their choices.

Effect of the Family

The family has an impact on other areas of student experience. The family environment can affect creativity, productivity, eminence and self-actualization. Families have a positive effect on gifted students' achievement when there is child centredness in the home, emphasis on achievement, high value of work and education and some monitoring of homework (Olszewski-Kubilius, Kulieke & Krasney, 1987). In families with low incomes, the following factors contribute to achievement: the family value of work and education, the presence of extended family in the single parent home, and the nurturing and stabilizing role of the grandmother. Mothers are shown to be most influential, although fathers seem to influence academic achievement, especially for girls (Van Tassel-Baska, 1989).

Whalen & Czikszentmihalyi (1989) found that gifted students have a greater confidence in predictability and trustworthiness of their family, whom they said demonstrated basically friendly feelings for them, especially if students were meeting expectations. These students dislike separation from family, as they are used to adult approval, and develop self-appraisal according to adult expectations. Males talented in science and mathematics were distinctive in affirming family relationships. Math, science, music and athletically talented female students reported family relationships to be valued in the mid to high normal range, but their sexual attitudes were low to sub normal. For female artists the pattern was reversed, their sexual attitudes were at a higher level than their family relationships. (Whalen & Csikszentmihalyi, 1989).

In a study by Rimm & Lowe, (1988), comparing grade 11 gifted achievers and underachievers, family environment was shown to have an effect. Extreme early attention may confer to early adult status and attention dependence. Consistency between parents is more important than parenting style, and parent interest and satisfaction with their personal careers is important.

Conclusion

Like students with disabilities, students labelled as gifted have exceptional needs not related to external factors such as ethnicity or socio-economic background. Although it seems that their superior academic potential places them in a position of advantage, they are at risk of dropping out or failing to reach their potential if their abilities are not recognized or accommodated. In addition, they tend to experience social or emotional problems related to their giftedness, and have unique needs in the transition from school to work.

Students With Developmental Disabilities

Introduction

The school system in Ontario has gone through many changes throughout its history. One of the most recent and significant changes was the move to open regular schools for all students, regardless of differing ability levels. The switch from segregating students with disabilities to integrating them is still in process, and requires many changes for educators and in school organization. The debate around this issue is complex, as is the debate around the proposed ways of successful implementation. This will be discussed in the section on students with physical disabilities. The purpose of this review is to describe the groups of students with developmental disabilities. Social, emotional, learning and vocational needs of 15-18 year old students with learning disabilities, developmental disability and emotional disturbances will be examined through a review of current literature.

Definitions

These labels describe conditions that are completely distinct from each other, but are discussed together because despite the differences in cause, they often result in similar social, emotional and learning difficulties. The use of discrete categories oversimplifies the situation of students. Individuals labelled as developmentally disabled, learning disabled or behaviour disordered may at times exhibit similar behaviours, or students categorized under the same label may vary according to the degree of their disability (Winzer, 1990). Students may have more than one disability, as categories overlap, or may overcome their condition until it is no longer disabling (Hallahan & Kauffman, 1986)

Each of the disabilities focused on in this review fall under a different category of exceptionality. Developmental disability is viewed as an intellectual difference. This condition is defined by Winzer (1990) as "significantly sub-average intellectual functioning resulting in, or associated with impairments in adaptive behaviours."

Learning disabilities are understood as a communication disorder. A specified learning disorder is defined as a disorder in one or more of the psychological processes involved in using or understanding written or spoken language . This includes perceptual handicaps, brain injury, minimal brain disfunction, dyslexia and developmental aphasia, but not learning problems related to sensory or motor handicaps, as above, emotional disturbance, or environmental, economic or cultural disadvantage (Mulcan and Shaughnessy, 1991).

Behavioural disturbance is a category which includes social maladjustment, emotional disturbances, and childhood psychoses (Winzer, 1990). Five patterns of deviant behaviour are associated with behaviour disorders, these include: 1) withdrawn seclusive, 2) anxious fearful, 3) hyperactive, 4) aggressive, 5) rule breaking (Sindelar, King, Cartland, Wilson & Meisel, 1985).

Ethnicity, SES and Gender

External factors, such as ethno-cultural or economic background and gender play a role in the labelling of students as learning disabled or behaviour disordered. Students from minority groups may be misdiagnosed as having one of these disabilities due to problems speaking English, cultural differences, alienation or teacher bias. Although it is important that students who are disabled receive support and programming, a misdiagnosis in this area can only lead to further alienation of the student.

There is a higher proportion of economically disadvantaged and minority students labelled as behaviour disordered (Hallahan & Kauffman, 1986; Winzer, 1990). In Canada, three times as many Native students as those from other groups are labelled learning disabled and 50 per cent of West Indian students in one school board in Ontario were described as having serious problems in language arts (Winzer, 1990). Problems with English fluency as well as cultural bias in testing may be a main factor (D'Oyley; Wancyzki, cited in Winzer, 1990). Almost half of the students labelled as learning disabled would be better described as slow learners, non-English speaking, naughty in class, chronically absent, or moving schools frequently (Gartner & Lipsky, 1987). Greater community involvement may be a solution to some of these problems. In northern Canada, recent improvements have occurred due to an increase in Native run schools and more Native teachers and aides (More cited in Winzer, 1990).

These factors result in the labelling of the poor, people with multiple disabilities, racial minorities, and other socially discriminated groups as deviant by the dominant culture (Hallahan & Kauffman, 1986), although their behaviour may be accepted within a subculture.

Gender may also be an intervening factor for students with disabilities. Boys are five times more likely to be labelled learning disabled than are girls, twice as likely to be labelled behaviour disordered, and eight times more likely to be in special education programmes (Winzer, 1990). Although boys may be more disposed to reading problems, it was suggested that they are more likely to be referred for assessment because they are more likely to act out in overt behaviour (Winzer, 1990).

Programming

According to the literature, specific programme options exist for children with learning disabilities or intellectual differences. According to Calhoun & Beattie, (1987), these include:

1 Remedial basic skills programmes
2 Tutorial in subject content
3 Functional and life skills emphasis
4 Work-study programmes
5 Tutorial in study skills

Calhoune & Beattie's (1987) study of programmes for children with learning disabilities or intellectual differences indicated that about 45 per cent of typical programming is remedial. There tends to be an emphasis on academic/remedial/tutorial studies or the preparation of students for post-school work and independent living. At the time of their study, they found that only 4 per cent of programming focused on how to learn and study. This is an important finding, as research points to training in this area as a successful way to intervene and modify or even prevent many learning problems.

High school students with learning disabilities have been able to acquire learning style strategies with appropriate instruction (Ellis, Lenz & Sabornie, 1987) and have become more independent, with increased performance and improved grades (Locke & Abbey, 1989; Whyte, 1983). Learning strategies include task specific techniques that incorporate cognitive and metacognitive training enabling students to solve typical school problems, and allowing teachers to generalize to content courses (Whyte 1983; Ellis, Locke & Abbey, 1989). Programme organization should be based on a tutorial period, a learning strategy class, team teaching, and content generalization (Locke & Abbey, 1987).

Another strategy cited as improving the learning of students with developmental disabilities was recommended by Blick and Test (1987) and involves a self-monitoring strategy for on-task learning. It has been found to produce similar results to other cuing procedures, while freeing teachers to focus on curriculum rather than behaviour. Self-monitoring is preferred to teacher monitoring because it is immediate, uses the student as an active participant, is conducive to generalization to other classes and leads to increased academic productivity (Blick & Test, 1987). Self-monitoring has been effective with average students and students with developmental, learning, and behaviour disabilities (Blick & Test, 1987).

Peer Relations

Social status and peer relations have been shown to be major problems for exceptional students. They are less accepted than other students (Cowardin, 1986). A significant number of learning disabled and behaviour disordered youth are socially isolated (Calhoun & Beattie, 1987).

It seems that peer acceptance is largely based on the qualities of the non-disabled students. Cowardin (1986) studied the factors affecting the attitudes of grade 10-12 students towards partially mainstreamed students with learning disabilities. It was found that popular students, students with lower achievement levels, better moral attitudes, female students, students from minority backgrounds and from the inner city, as opposed to middle class suburban students, had more favourable attitudes. They also found that tolerance of difference increased as students got older. Peers who rejected the disabled students tended to be less popular, less morally mature, and generally less charitable in their judgement of others. Intervention can be focused on enhancing the personal and moral development of these students. With adequate advocacy and facilitation, high school students have been open to supporting students with exceptional needs in social and learning situations, through cooperative groups, peer tutor systems, peer buddy and support networks (Williams, Villa, Thousand, & Fox, 1989). The G. Allan Roeher Institute (1990) in Toronto suggests ways in which peer relationships can be actively fostered. They recommend matching individuals through formal volunteer programmes, a method often resulting in life-long friendships. Further suggestions include buddy programmes, host families, self-advocacy, personal support networking, fostering friendship through existing social networks such as churches, schools and jobs, and bridging to the community through exposure to new people, places, and opportunities.

Some of the difficulties students with disabilities experience result from their lack of social skills or anti-social behaviour. Winzer (1990) suggests that this is true of many students with learning disabilities, behaviour problems, developmental disabilities, neurological disorders, visual and auditory impairments. Students with behaviour disorders and learning disabilities may have trouble handling conflict situations. They react immaturely, with distorted perceptions of fairness, personal space, and a tendency toward name calling. Their class behaviour is often immature and disruptive, with inappropriate physical contact and a tendency to speak out (Calhoun & Beattie, 1987).

Individual Characteristics

Students with developmental, learning, and emotional disabilities have some similar problems in these areas. Students with intellectual differences such as developmental disability lack certain skills which make achieving autonomy difficult. They may fail to develop a sense of adequacy, confirming a low self-image (Wells & Allan, 1985/6). They also are less likely to have adequate sex education, despite their normal sexual development and interest, and therefore may be more susceptible to fears, myths, and exploitation (Winzer, 1990). According to Whyte, (1983) youth with learning disabilities develop a low internal locus of control, damaged self-concept and defenses. They display abrasive personality behaviour, poor social perception, inability to generalize across situations, oversensitivity to the reaction of others, difficulty in interpreting verbal and non-verbal communications and moods, and difficulty in determining the impact of their actions on others. They are further described by Winzer as highly anxious, with fewer stress and problem coping strategies, low expectations for the future (Stevens & Pfil, 1983) impulsive, irritable, suggestible, with a low frustration threshold, and low self-esteem.

Students with behaviour disorders fall into two general categories of behaviour that are found to be unacceptable to adults and other peers. They experience either anxiety withdrawn or conduct disorder behaviours. Both types exhibit undesirable and unstable self-images (Peck cited in Abrams, 1988), high egocentricity, low self-esteem, low social interest, low individuation and low identification with teachers and peers (Abrams, 1988).

Students with learning disabilities are shown to be low in adaptive behaviour, especially at the secondary level. Adaptive behaviour involves an individual's capacity to perform tasks of personal independence and social responsibility appropriate to their cultural group and age. This includes a range of social, interpersonal behaviours and skills relating to attention and organization (Mulcan and Shaughnessy, 1991).

Learning Styles

Learning differences occur most consistently for students who are learning disabled, as before, and behaviour disordered. These students commonly have short attention spans and erratic on-task behaviour. Typically, if teachers can increase these students' on-task behaviour, possibly through self-monitoring programmes, learning increases (Blick & Test, 1987). This may be especially true for youth with behaviour disorders whose inability to learn can not be explained through intellectual, sensory or health problems. Their learning differences are caused by their behaviour interfering with expected performance (Winzer, 1990).

Intellectually different students who are below average functioning are typically referred to as mildly, moderately, severely and profoundly developmentally disabled. Their learning abilities range from slightly below average to very low, depending of their functioning ability (Winzer, 1990). This highest functioning of this population are described as inactive learners. These students have learned helplessness, motivational deficits, and defensive coping strategies incompatible with doing one's best. They tend to be ineffective in meeting the demands of the school environment, and need instruction in social and organizational skills (Calhoun & Beattie, 1987).

Calhoun and Beattie describe some learning characteristics of mildly developmentally disabled grade 9-12 students. They are sometimes unprepared for class, lack problem solving skills, have high test anxiety, and lack skills to work alone. Being in the right place at the right time with the right materials can be a challenge. They often do not participate in mainstream classes and resist asking for help when needed because they may draw attention to their differences. They show a skill deficit in written and oral expression. Informal communication, such as body language, is more effective for these students than formal communication, such as stating an opinion in class, or dealing with authority figures.

High school students with learning disabilities have very marked learning differences. They are passive-resistant learners, unable to develop learning strategies independently (Locke & Abbey, 1989). They tend to have problems reading, writing, spelling, and doing arithmetic. Minimal brain disfunction leads to perceptual-motor difficulties in visual, auditory and motor processing areas. Psycho-linguistic problems occur in interpretation and use of oral and written language. Although some learning disabled students may be of lower intelligence, often individuals with learning disabilities are of average or higher than average intelligence (Winzer, 1990). The following are cited in Whyte (1983), as learning characteristics of students with learning disabilities):

- discouraged about learning, a history of failure supersedes the disability and develops as a way of life incorporating a concept of being unable to learn (Anderson, 1970);
- reach an academic plateau in grade ten, at about a grade six level (Deschler, Lowley & Alley, 1979);
- deficient in test taking and study skills (Alley, Deschler & Warner, 1979);
- poor note taking skills, low ability to monitor writing errors, scan or listen (Carleson & Alley, 1981);
- lack of problem solving strategies (Schumaker et al., 1980);
- logical thinking and abstract reading skills slow to develop (Brutten, Richardson, & Magel, 1973);
- perseveration, disinhibition, and a qualitatively different approach to problem solving (Habertape, 1976);
- inadequate in dealing with symbols and listening (Hagin, 1971);
- poor performance on blending tasks, grammar, and vocabulary skills (Deschler, 1974);
- oral and/or auditory processing deficits including auditory discrimination, comprehension, memory, recall, oral formulation, pronunciation of multi-syllabic words (Blacock, 1982); and,
- low internal locus of control (Werner et al., 1971; Whyte, 1983).

It is important to note that an individual with a learning disability may have as few as one of these learning differences. In some cases, disabilities can be overcome or compensated for through learning strategies instruction.

The lower achievement of students with behaviour disturbances cannot be explained by any cognitive or intelligence differences, but their problems with behaviour affect learning style.

Goals and Aspirations

The career-related experiences and choices of students with disabilities may be disrupted or diminished due to protective attitudes of parents and guardians. Pre-occupation with treatment of the disabling condition detracts time from exploring life, or results in limited or no contact with the world due to confinement to an institution (Chubon, 1985). Even assessing the vocational preferences of students with developmental disabilities tends to be inaccurate because most assessment instruments are not applicable to such groups due to their low reading levels and short attention spans (Alcorn & Nicholson cited in Wilgosh & Barry, 1983). Assessment instruments designed for these populations tend to present limited career choices, have strong occupational, gender, race and regional biases, and have inappropriate reading levels and instrument length. They also require subjects to have motivational levels or awareness of activities that is unrealistic for this group (Wilgosh & Barry, 1983).

Wells & Allen (1985/6) state that the most common problems in vocational and community placements for people with developmental disabilities are social and emotional in nature. For young adults who have learning disabilities or developmental disabilities, instruction in school competence, learning skills, communication and social skills may have implications for post-school success. Socially acceptable behaviour, interpersonal and organizational skills learned in a school environment contribute to success in the workplace (Calhoune & Beattie, 1987). Participation in non-academic activities can provide students with higher self-esteem and greater chances for a fulfilling future (Murtaugh, 1988).

For people with disabilities in all categories it is important to receive guidance counselling in career options, practical exposure to a wide variety of careers, and instruction and support in acquiring or compensating for skills necessary for working and living independently.

Conclusion

Students with disabilities that are developmental, learning, or emotional require greater amounts of support in the classroom, as well as in social skills and vocational counselling, than do average students. Although there are some similarities among students in these categories, these disabilities are different in nature, and students require programming and support that is relevant to their particular social development learning and vocational needs. Although differing support systems are required to accommodate the diverse needs of students with disabilities, students tend to be better adjusted when in a mainstream high school than when in a segregated educational institution.

Students with Physical Disabilities

In Canada, 93.8 per cent of 15-20 year old people with disabilities attend regular schools, over half of them full time in regular classrooms (Moodie, 1991). In order to accommodate the needs of students with disabilities, educators must understand who these students are, what types of challenges they face, and how their disabilities may affect the way they feel and learn. With this understanding, educators and policy makers can create programmes to prevent unnecessary difficulties for exceptional students, intervene in areas needed, and assist in the transition of young people from school to work. The purpose of this literature review is to profile 15-18 year old students with physical disabilities. Physical disability is defined by Winzer (1990) as any physical impairment, other than visual or hearing loss, that interferes with development or learning. Included in this definition are neurological disabilities, which result from damage to the spinal cord and/or brain and musculoskeletal impairments. Often categories overlap and some students have developmental or sensory disabilities as well as physical disabilities. Although this must be taken into consideration, these areas will not be explored in depth in this section.

Some of the largest challenges faced by students with disabilities are the fewer social, personal and educational opportunities available to them due to the prejudices, fears and ignorance of other people. If a disabled individual is from a low socio-economic or visible minority background, or is female, these challenges may be magnified. Although no literature was found on how these external factors affect the lives of students with physical disabilities, a large body of literature describes how students from minority backgrounds are faced with a lack of role models, bias in testing, assessment and placement, misunderstanding and biased expectations by educators (Fine, 1985; Myles & Ratslaff, 1988; Wood, 1986; Winzer, 1990). It is assumed that what is true for minority students in general, is probably doubly true for disabled students who are even further marginalized.

Integration versus Segregation

Much of the dialogue in the literature on school programming for youth and children with exceptional needs revolves around the question of segregated versus integrated education. Although in the past segregated schools and special classes were the norm, there is a current movement in Canada towards integration and mainstreaming (Winzer, 1990). Parental and community advocacy for integration has increased over recent years (Porter & Richler, 1991). Much of the literature points toward integrated schools as the optimal setting for students with disabilities. Integrated students have been found to spend as much time with special education teachers as segregated students, more time with teachers assistants and aides, and more time off school property in community programmes. Segregated students spend much of their time in therapy, or alone (Cole & Meyer, 1991).

St. Jeromes High School in Waterloo Ontario was given by Forest (1987), as an example of an integrated setting that works. The following reasons were cited for its success:

- the school principal had a clear vision for implementing integration;
- the faculty was willing to make changes;
- the building of a working team;
- outside consultants;
- peer helpers and friends;

- teacher aides as community facilitators;
- creative work experience components; and,
- continuous in-service training, discussion and support.

The integration of students with differences in all categories is being implemented in Canadian schools. Rinck, Berg and Hafeman (1989) showed that adolescents with spinal bifida who had experienced both integrated and segregated settings, claimed preference for integration, despite being teased and stared at. They suggested that for ten to twenty year old students with spinal bifida, a regular school setting is optimal. They cited Carr (1981), as showing that integrated students excel academically compared to segregated students. Integration, along with functional curriculum and community based instruction was shown to be a necessary component for successful transition to independent life and work (Rinck, Berg & Hafeman, 1989).

Students with hearing impairments have also demonstrated better achievement when integrated. They score better on verbal achievement tests, and keep up to grade level, compared to partially integrated and itinerant students, who are on average about a year and a half behind. On the other hand, integrated students with hearing impairments are comparatively less well adjusted and integration may have adverse effects on developmental health (Reich, Hambleton & Houlden, 1977). The researchers suggested that parental support of their child's programme is important and recommended mainstreaming for high school students with English speaking parents who attended high school, support integration, and stay in contact with the school. Saur, Coggiola & Simonson, (1986) strongly recommended integration as a factor for academic and career related success of this population, adding that degree of hearing loss does not affect success in either school or career.

For students with intellectual challenges, mainstreaming is shown to be successful in benefiting academic achievement, but not social or emotional adjustment (Reich, Hambleton and Houlden, 1977).

Some barriers to successful integration for students with physical and developmental disabilities exist, including lack of ramps and elevators, prejudices of parents who fear the social consequences for themselves and their children, and the attitudes and fears of teachers who are faced with increased work load and stress. The research literature suggests that teachers and parents must believe in integration for it to work, as their attitudes are internalized by students. In addition, teachers need support and a team to share responsibility for facilitating integration (Winzer, 1990).

Although some criticisms are pointed out, an integrated school policy is supported strongly in the literature and is being implemented in many schools in Ontario (Forest, 1987). The training and assignment of teachers, consultants, and resource specialists need to be refocused. Teachers who specialize in self-care and community living, as well as specialists in behaviour management, material adaptation and alternative communication systems are needed. In addition, a reorganization of personnel preparation and assignment according to instructional categories rather than categories of students is required (Stainback & Stainback, 1984). The New Brunswick Teachers Association (NBTA) (1988), found that pre-service training was not keeping up with the pace of the movement to integrate. Current resource materials and support staff were not sufficient to relieve the increased workload and stress of teachers. Integration-related in-service training was needed. Team based responsibility was emphasized. The NBTA encouraged the government to establish appropriate funding and timelines to effectively implement integration. Williams, Villa, Thousand and Fox (1989) suggested that teachers pool resources, form collaborative planning teams and create job shadowing, mentoring, peer coaching, peer buddy systems and team teaching.

Social Status and Peer Relations

As was noted earlier, most Canadian students with disabilities are at least partially integrated in regular schools. A large part of their school experience, involves interacting with non-disabled students. They tend to be perceived by other students as more helpless, distressed, and deserving and desiring of pity (Donaldson; Hazard, cited in Gillies & Shakley, 1980). A large part of the problem seems due to the prejudices and ignorance of high school students in general, although this may be changing as inclusion has been shown to develop meaningful relationships between different types of students (Meyer, 1991; Gillies & Shakley, 1980). Gillies & Shakley (1980) studied the attitudes of 14 and 15 year olds toward their peers with physical disabilities. Students in integrated schools were more likely to have positive attitudes, more often perceiving them as clever, easy to be friends with, capable in domestic settings, and were less likely to be embarrassed by social contact, than were students at schools without a policy of integration. They were more likely to feel positive about the integration of students with disabilities in their classes.

Attitudes of peers is only a part of the problem in the social adjustment of students with physical disabilities. Students with neurological disorders such as cerebral palsy, spinal bifida, and multiple sclerosis have a tendency to be troublesome, with a deep concern for social acceptance and a need for sexual acceptance and expression (Winzer, 1990). Often people with physically disabling conditions experience social stigmatization or frustrations due to repeated failure or dependency that result in negative personality characteristics and emotional adjustment problems (Pulvino & Benton, 1986).

Peer support systems, such as those described in the literature review profiling youth with developmental disabilities, may be effective in fostering lasting friendships between students.

They are also a way to solve some of the mobility problems that can be so restrictive to physically disabled students. These students have limited access to resources and social events, both in the school environment, and in relationships that extend beyond school. By fostering friendships with other students, educators are both intervening and taking preventative measures to reduce the isolation often experienced by students with disabilities.

Individual Characteristics

For adolescents with severe physical disabilities, protectiveness and dependency, fostered by parents and teachers, may result in social immaturity, problems in decision making and problem solving, and depressed scores on tests measuring developmental ability (Chubon, 1985). Harper (1983) found there was no difference in personality scores between adolescents with congenital versus traumatic physical disabilities. It was found that multi-orthopaedic impairment leads to isolative, pessimistic, self-centred and alienated youth. Adolescents with physical disabilities have additional problems regarding self-concept, body image, and low motivation (Pulvino & Benton, 1986). It seems the presence of an impairment is more relevant than the type of impairment in examining social behaviour and personality type (Richman & Harper cited in Harper, 1983).

Harper studied the personality traits of males between 15-18 years with a progressive form of muscular dystrophy and those with non-progressive orthopaedic disabilities such as cerebral palsy. Differences were found, largely due to the increasing levels of stress, frustration and anger of boys with the progressive disorder, whose bodies were forcing increasing levels of dependence on others, and whose life span was not expected to extend beyond twenty years of age. These young men were more socially introverted, experienced more conflict with authority, were solitary, shy, and showed signs of dissatisfaction, hopelessness and long standing depression. Boys with the non-progressive disorders tended to be more outgoing, but also immature and impulsive. Both groups scored lower on personality and adjustment scales than the norm. Both groups also displayed depression, a passive style of male identification, and a pre-occupation with bodily complaints.

Rinck, Berg and Hafeman (1989) found youth with spinal bifida to be dependent on others. They experienced limited mobility, limited opportunities to socialize and medical and hygiene problems leading to difficulties in establishing firm identities, independence from parents, forming deep interpersonal relationships or exploring life time vocations. They demonstrate low self-esteem related to perceived degree of disability, mild depression, and relative social isolation.

Some characteristics of students with neurological disorders include frequent truancy, social isolation, psychiatric disorders, depressive reactions, shock, apathy, detachment, negative self-image, and deep concerns with social competence, sexuality, and career (Winzer, 1990). For these students and those with other physical disabilities, integration seems to have a positive effect on personality and adjustment (Cole & Meyer, 1991; Rinck, Berg & Hafeman, 1989). Although integrated students with severe physical disabilities showed no differences from segregated students in communication or adaptive behaviour, over a two year span, they demonstrated increased abilities in managing their own behaviour, in social situations, providing feedback to others, coping with negative social circumstances, and terminating negative social contacts, whereas segregated students regressed in these areas (Rinck, Berg & Hafeman, 1989).

Learning Styles

Studies have shown that having a high internal locus of control is conducive to selecting appropriate learning strategies, resulting in high achievement (Curry, 1991). For students with physical disabilities the intervening factor of a low internal locus of control created by an exaggerated dependence on others for mobility results in some difficulties with problem solving and decision making (Chubon, 1985).

Neurological disorders, cerebral palsy, muscular dystrophy, and spinal bifida may or may not be accompanied by learning disabilities or developmental disabilities. Cerebral palsy may include sensory impairment and speech defects for some. In addition, there may be some problems with short attention span and distractibility (Winzer, 1990). Perceptual and cognitive disfunction are common for individuals with spinal bifida (Anderson, 1973) as well as poor performance in reading, spelling and arithmetic (Tew & Lawrence, 1975). It is important to remember that for students with neurological disorders, receptive language is often stronger than expressive language. Also, learning problems may develop for these groups because of the amount of school missed for medical attention and home-bound instruction may be necessary during extended absences. Certain technical devices may be helpful in meeting the learning needs of these students. Wheelchairs, crutches, bliss boards, head wands, speech synthesizers and computers all may aide learning by increasing student mobility or communication (Winzer, 1990). The introduction of computers has affected the experiences of high school students. Especially for students with special needs, computers have proved to be useful as instructional aides. They can be programmed to meet special needs through pacing, repetition, content quality and quantity. Computers address students' need for control and autonomy, and can facilitate communication (Warger & Weiner, 1987) for students with gross and fine motor problems, verbal difficulties and other problems. Often computers are combined with other tools such as voice synthesizers, headwands, or bliss symbol boards (Winzer, 1990) depending on a student's specific needs.

There is a paucity of literature on the learning styles of students with physical disabilities without the presence of complicating factors of sensory or communication defects. Learning differences may exist however. Literature suggests that psychological factors such as self-esteem, internal locus of control and self-confidence affects achievement and decision making, and that students with disabilities tend to be lower than average in these areas. Inferred from this, is that physically disabled students may have cognitive learning differences that are indirectly related to their disability. This seems to be an area needing further research.

Goals and Aspirations

Students with physical disabilities face certain obstacles in choosing a fulfilling career. Full integration into society is thwarted by a lack of independent living alternatives for adults with disabilities. They are faced with negative employer attitude toward hiring and high rates of unemployment due to inadequate vocational training (Wilgosh, 1990). People with disabilities are nearly 20 per cent less likely to have completed high school than the general population, and tend to only obtain entry level jobs (Moodie, 1991). Although an exact figure was not located, literature suggests that the unemployment rate for this population is extremely high (Harrocks, 1991). Having a greater number of career options helps ensure job satisfaction, because it allows some choice (Chubon, 1985).

Specific problems in decision making, resulting from a history where decisions are always made for an individual, makes choices more difficult. Without some decision making responsibility, it is difficult to become competent and independent, or be stimulated to think about one's future (Chubon, 1985). These students are often placed in a situation where they rely heavily on government training and funding and are not given a second chance if they fail at a first attempt, or are recommended to programmes that are not challenging (Chubon, 1985). Career awareness programmes should focus on field trips to different types of workplaces, including places where people with disabilities are often excluded. Exposure to role models with disabilities is important, not only for students with disabilities, but also for parents, teachers and peers whose prejudices affect the opportunities, confidence and choices of these students. Various problems and issues associated with disabilities could be examined in social studies classes, to increase the awareness of teachers and all students. Guidance counsellors can assume an advocacy role including facilitating students in exercising their right to take difficult courses, take risks, and to fail and try again (Chubon, 1985).

Factors Related to the Family

Family situation is an extremely important factor in the lives of students with physical disabilities. When their peers in high school are beginning to enjoy greater amounts of independence and freedom, students with mobility restrictions are dependent on family members to do daily chores, or to participate in the community. In recent years, the trend toward deinstitutionalization, often without adequate social and community support, has resulted in greater strain on families (Wilgosh, 1990). Caring for a youth with a disability without training, support, or time off presents a strain for parents and they often do not have the time or energy for hand over hand prompting in chores or community integration (Horrocks, 1991). This has negative implications for the transition to independent living, as these youths are even further challenged in learning the skills and responsibilities needed to care for themselves as independently as possible.

There are some problems in communication between the families of disabled children and the schools. It has been shown that teachers believe that as trained professionals, they are more cognizant than their students' parents of what is best for students. They feel that parents are unrealistic about their children's needs and uninterested in their education. Parents, on the other hand, are frustrated with the lack of communication and support from teachers. They believe that successful schooling for their children is dependent on both the personal and professional qualities in teachers, including open and honest feedback. Both parents and teachers have expressed the view that the vocational needs of youth with disabilities can provide a basis for parent teacher cooperation and collaboration (Wilgosh, 1990).

Counselling

The needs of exceptional youth in areas such as peer relations, personal development and vocational guidance emphasize the importance of counselling. Because school guidance counsellors often lack training in the specialized needs of exceptional students, they are frequently referred to special educators, who lack training in counselling and thus are denied the quality of service available to other students (Wells & Allen, 1985/6). Pulvino & Benton (1986) suggested that the role of school guidance counsellors be extended to meet the needs of all students. Counsellors need to work closely with parents, teachers and students and receive in service training in order to resist referring students with disabilities to rehabilitation counsellors, psychologists, and special educators. They must come to terms with their own feelings and thoughts about persons with disabilities by actively learning to empathize with these students. Counsellors should be encouraged to systematically examine their attitudes and actions about people with disabilities.

Conclusion

The educational needs of young adults with physical disabilities are not simple. These students face obstacles resulting from reduced mobility and physical dependence, requiring practical tools and support to perform everyday functions that are automatic to other people. In addition, they experience the indirect effects of their disabilities, including social and emotional problems. The people they interact with perceive them as helpless, and without support they are often isolated from the community. These are all problems which can be overcome or accommodated through devices such as wheelchairs and computers, attention in schools and workplaces to building accessibility, community support networks and public education. The movement toward integration represents a step toward better living for disabled people. For integration to be an effective step, however, the school system and educators must be aware of all the needs of this population and be prepared to listen to disabled students and their families.

III — QUALITATIVE COMPONENT

Research Method

The qualitative research was conducted as follows. The research team consulted with selected key informants to identify a number of innovative educational programmes in Ontario, addressing the particular target groups under study. Researchers collected information on these programmes through a combination of interviews and participant observation. The interviews were conducted with teachers, administrators, government officials, and students. A "snowball" technique was employed, whereby other programmes were identified at the initial interviews. Respondents were informed that their identities, as well as the programmes, would remain anonymous. The research team conducted some 15 interviews. Upon completion of the research, the data were organized in a manner which would address the educational implications found in the literature reviewed. The research was organized under the following headings: Gifted Students, Students with Physical or Mental Disabilities, Dropouts, Returning Dropouts, Potential Dropours, Native Students, and Immigrant Youth. These programmes cannot be examined outside of their organizational and institutional context; they must be understood as parts of a larger process. This observation will be illustrated by an in depth examination of one high school in which numerous programmes co-exist in a mainstream educational setting.

Exceptional Students

Gifted Students

Gifted students are those who show potentially high ability as identified through the Identification Placement and Review Committee (I.P.R.C.) testing process. While it is assumed that students in gifted programmes possess a higher level of intelligence than average students, some students have had greater degrees of stimulation in areas such as music, math or English, causing them to perform at respectively higher levels. In such situations students find themselves placed into gifted programmes for reasons other than those prescribed in ministry regulations.

The definition of gifted is situationally applied and sometimes negatively received. Prior to entry into the programme most students undergo testing to identify whether or not they are gifted. If the student is judged gifted, the parents are approached to obtain permission for their child's participation in the programme. Parents of immigrant youth often decline to have their children participate, believing that because the work is more difficult, their children's grades will be lower.

In an interview with a teacher of gifted students, the teacher suggested that conflicting expectations of other teachers, students and the family must be taken into consideration:

> the family decides on many occasions whether the student will succeed. If the family is against the programme they will pull their student out of the programme at the first sign they are slipping in their grades. On the contrary when a student is found to not be receiving the needed education in the enriched programme and has to be redirected, the parents many times take it out on the child, believing that he or she is stupid...(Interview with an educator).

Conversely, many families argue for their child's participation in the programme, even when their score is not sufficiently high, believing that an enriched programme means better teachers and resources. Not all teachers share this belief. Many believe that such programmes isolate students, and instill in them a false feeling of superiority, poorly preparing them for post high school experiences. There remains confusion between the real and perceived purpose of enrichment programmes.

The greatest misconception held by parents with respect to gifted and enriched programmes is the belief that there will be a superior level of teaching and resources made available to their children. They further believe that the curriculum is better suited to prepare students for post secondary experiences. Students who have experienced both forms of education reported that they did not receive a better education in enriched programmes, but they liked the way the teachers explained things, organized their courses and encouraged them to become involved in the process. Other classes made them feel alienated because questions or insights they would bring up were frequently dismissed as irrelevant to the discussion. The students interviewed tended to think that the special programming was better suited to help them reach their academic potential and cope in the educational system.

Characteristics of Students and Programmes

When teachers in an enriched programme were asked to describe qualities of students who are gifted and programmes that they felt best addressed gifted students' needs, many common issues were cited. Teachers felt that gifted students are poorly served by the educational mainstream, because the mainstream is not designed to accommodate their expectations and abilities. Gifted students performed below their potential due to boredom, lack of motivation, or incompatible learning styles, thus increasing the risk of dropping out. In response, enriched programmes attempt to challenge the student on his/her own level, offering a wide variety of educational alternatives. Many enriched programmes have initiated gifted co-op programmes, where the students are placed into a work setting for a period of time, receiving academic credit for their labour. While co-op has been used as an alternative to mainstream education, what differs in gifted co-op programmes is that the employers are coached as to the unique nature of the students (e.g., higher base subject knowledge). The programme also responds to the diverse needs of the gifted student by offering greater levels of both independent and participatory work. In one programme, the instructor invited suggestions from the students on assignments and their content, to be incorporated into a lesson plan. This communication allowed the students to express their needs and the teacher to respond.

While there are no absolute profiles of the gifted learner, neither are there ideal types of gifted/enriched programmes. Teachers have differing ideas on how to successfully respond to the diverse educational needs of students. As a result, programmes for gifted students tend to be very dynamic and process oriented, constantly responding to the changing needs of their students.

Enriched programmes are seen as part of a solution to better education, but not the only answer. Many students find that after a period of time, the special programme is not for them, deciding that other educational alternatives are better designed to meet their needs.

The focus of these programmes is on those learners who possess educational needs that the mainstream system is unable to satisfy. Many of these learners have the ability to perform at high levels and find the mainstream system boring and the work trivial.

> It took the teacher over three weeks to explain the concepts to the class and even then the kids were confused. Because of that class, I skipped a few times and never did the homework. (Interview with student)

While I.P.R.C. is the standard method of identifying students as exceptional, often teachers exercise flexibility when admitting a student to a gifted programme. One teacher noted that sometimes because of reasons such as language, culture and personal problems, students do not perform at expected levels and therefore do not qualify as gifted according to I.P.R.C. standards. If a teacher recognizes the student's high potential, she/he is able to include the student in the enriched programme without technically labelling the student as gifted. This increases the student's chances of overcoming barriers such as poor English skills, and passing the I.P.R.C process at another time. Also, while there are full time enriched programmes, there are also specialized classes such as enriched math or music for students in mainstream classes.

Other external agencies such as businesses play a role in the success of these programmes. In one gifted/enriched co-op programme students gained work experience through exchange with business. This permitted the learner to take the educational process beyond the walls of the school into the community. Such programmes are directly interrelated with all other aspects of the educational system.

Application of Bloom's Model

Gifted/enriched programmes are geared to all three of the elements of Bloom's Model: retention, intervention and transition. When not in programmes designed to meet their special needs, many gifted students perform below their potential and may be at a greater risk of dropping out of high school. Participation in gifted programming, regardless of type, serves to motivate students, helping retain them in the education system. Factors such as level of English fluency, previous educational experiences and employment require a response from the school system in order for students to perform at their potential. Some schools have initiated workplace co-ops as part of their enriched programmes, as a means of accommodating the differing linguistic and academic needs of students who are not a part of the dominant culture.

These programmes serve to intervene on behalf of students when existing structures fail to address their needs to accommodate the changes in students as they develop. Gifted students are prepared for the transition from secondary school on two levels. The first is reflected in co-op programmes, which provide the learner with valuable work experience that aids in career decisions, without competing with their academic expectations. The second transitional function addresses their needs through dynamic teaching styles, preparing them for post-secondary education.

These programmes seem to work within a holistic philosophy, where the same programme functions to retain students in school, while intervening in areas needed and aiding in the transition from high school to work or post-secondary education.

Effectiveness of Gifted/Enriched Programmes

While Gifted and Enriched programmes appear to respond to the needs of students through diverse teaching and learning styles, both students and teachers harbour some concern with respect to the continued effectiveness of the programmes. The most overwhelming concern echoed by educators is centred around the total elimination of streaming. Teachers fear that this would place all students in the mainstream class without any attention to their particular needs. They worry that the needs of gifted learners will not be met, resulting in poor performance and higher dropout rates. Other educators fault special needs programmes which are administered in isolation of each other. Many argue that a system which serves the diverse population of students through the use of dynamic teaching styles, needs to be applied within the special education context.

Students with Physical and Mental Disabilities

As stated earlier, students who have physical and mental disabilities form a large and diverse population. In the Ontario school system, these students, along with gifted students, fall into the category of exceptional students. There are many students with different types of physical, mental or emotional disabilities, each requiring appropriate attention.

Programming

Each classroom for students with disabilities offers unique services, due to the great diversity of its students. Programmes are designed to meet many needs within the overall context of a 'special' class. The requirements of some learners are addressed through supportive mainstream programmes, but others may require special programmes to respond to their needs.

Segregation versus Integration

The debate between where and how best to educate youth with physical and mental disabilities has been a point of contention for years. In the segregation model students are removed from the larger educational context, based on the premise that these learners' needs would not be successfully responded to in mainstream classrooms. This is in direct opposition to the integration model, which argues that the educational needs of learners with physical and mental disabilities are best met in the mainstream school. Countless programmes combine 'special' and 'regular' education classes. As one teacher noted,

> my students (physically and mentally disabled) are no different in what they want than the other students in this school, except people think that they do not want anything except to be taken care of.... that is not true, all they want is to be part of the world, and our programme allows them to learn but do so in light of the larger school community (Interview with an educator).

It is the philosophy expressed in these programmes which prepares youth with disabilities for future experiences both within the classroom and beyond.

One programme which had been in existence for 12 years illustrated this dynamic approach to teaching and learning styles, accommodating a variety of differing student needs. Students in the programme were encouraged to be participating members of the high school community. The programme was situated within a mainstream high school, accessing all the resources, such as the library, lunch room and gymnasium. They participated in the school's social and academic activities, including sports, dances, presentations and other events within the school. Integration fostered the students' identities as members of the school community. Students reported that in segregated programmes, they had been in settings completely removed from other students and this made them feel that they were not really going to school. One student noted,

> I really like this school. I have a lot of friends, and a gym and there are lots of kids to talk to about everything that I find interesting. (Interview)

This concern for "going to school" should not be underestimated. When the students felt they were going to high school, they took what they were doing seriously and began to feel more comfortable with themselves. One student said that before coming to his new school he felt embarrassed because he had never really talked with "regular" students. Once in the programme, he felt part of the "gang" and this sense of community made him desire to come to school every day. Students are further integrated into the system through their academic studies. Students with disabilities participated in some mainstream classes, such as physical education. This was beneficial to both the exceptional students, participating as full members of the school, and the mainstream students, who learned to see beyond an individual's differences.

The successful integration of the programmes occurred in conjunction with the use of dynamic teaching styles. In one programme, the coordinator noted that the class included the entire spectrum of students with physical and mental disabilities, making teaching very difficult. Teaching needed to be highly individualized, as students' needs varied greatly. Projects were conducted in a class fashion, but assigned work and expectations were individual. Students were challenged by the teacher at their own levels and success was learner based and evaluated. Teachers and students worked together to define and redefine their educational goals. It is this dynamic nature of the system which once again highlights the ability of such programmes to meet diverse needs with responsive teaching methods.

There has been discussion of the degree to which students must be removed from mainstream settings in order to receive the attention that they require. Selection into such programmes is dependent upon many formal and informal factors. Formally, the selection is well documented in guidelines, but informally, the process becomes far more varied. Some programmes must be solicited by the family of the learner, while other programmes actively select those students from the larger population. In the classes observed, one teacher noted that,

> students for this programme are fed to us from all over Metropolitan Toronto, they are bussed, taxied and some take the T.T.C. themselves. They all are unique and their parents hope that we can make them more independent and a little closer to their own individual level of potential. (Interview)

Most programmes are very small, including 10 to 15 students, a certified teacher and a teacher's aid. This ensures very individualized guidance for each student, during all aspects of the programme.

Most teachers attempt to design their programmes in light of the larger educational context in which their class exists.

Concerns of Educators

Educators have some very specific concerns as to the future role of special programmes in the system. The most complex of these problems is the debate between segregation and integration. One of the programmes observed illustrates some of the problems associated with integration. The programme was situated in a mainstream high school. Integration was achieved through academic programmes and involvement of learners with physical and mental disabilities in the social and athletic activities of the school. This initiative was based on the philosophy that learners at different levels should not be isolated from each other.

Instead the programme served to highlight for many students their educational divisions. The programme was placed in the basement, where no other classes were held. Teachers noted that there was little if any interaction between students from the mainstream and special education classes, unless prescribed by curriculum. Students from the mainstream programme were led to believe that working with students in 'special' classes was "helping those less fortunate." Even though many teachers attempted to overcome these stereotypical attitudes, the divisions between the programmes were institutionalized, and therefore difficult to overcome.

There has also been an attempt to include programmes for exceptional students into the larger educational context, through the regionalization of each programme. Originally, special programmes operated under a different board of education than mainstream programmes, despite being housed in the same school. While the intention of creating a special board was to better accommodate the needs of special programmes, in fact special education programmes were perceived as renting space in the high schools, and students were seen as tenants of the school, rather than an integral part of it. Recently, there has been an attempt to place all programmes directly under the same board of education. Furthermore, programmes and teachers become accountable to the principal of the school in which the programme is situated. Many teachers, while pleased with the inclusion of the programmes in the high school, harbour concerns over the full integration approach. They argue that principals and school boards are not prepared to address the needs of learners with physical and mental disabilities. Administrators, intending standardization, may expect these programmes to adopt the general mainstream philosophy. Furthermore, administrators may stress a market mentality to education: large classes, standardized teaching and evaluation. Many teachers are concerned that attempts at integration will only further isolate the programmes, stressing a general philosophy of education rather than a holistic one, which will serve a large and diverse population of learners, while failing to address their needs.

Exceptional students do not embody a homogeneous group requiring the same educational intervention. In any given programme there is a diverse spectrum of students, each possessing needs which standard teaching styles are incapable of satisfying. While programmes for students with mental or physical disabilities are in many instances physically removed from mainstream programmes, these programmes should not be construed as entities unto themselves, but rather dynamic parts of the larger educational context. Educators can design programmes specific to the class and furthermore specific to the learner. For example, co-op programmes facilitate the school to work transition for learners who are ready for employment. Moreover, the system responds to students in relation to their individual ability level. The diversities among exceptional students should be evidence of the need for flexibility in the educational process, permitting educators to use varied teaching styles when responding to the learning needs of these students.

The Bloom Model

The diversity of student needs and programme responses are highlighted when viewed, again, in light of Bloom's conceptual model of prevention, intervention and transition strategies. It is evident from the programmes observed and the students interviewed that they include in their mandate all of Bloom's educational strategies. By creating an environment that is the least restrictive, and actively working to accommodate the needs of students, schools through these programmes are taking preventative measures, encouraging the retention of students in school. In the area of intervention, current programmes in Ontario intervene on behalf of disabled students on many levels. Programmes that are distinct from the mainstream are provided in a manner that includes the exceptional learner in the larger context of the high school. These programmes intervene by allowing the student to investigate with their teachers potentials unbounded by mainstream educational expectations. They also aid the learner with physical or mental disabilities in their transition from high school to post secondary experiences. Although these experiences differ considerably depending upon the individual student, some of the programmes attempt to prepare the student for independent work and living through instruction in grocery shopping, job skills, transit use and basic cooking. Co-op programmes allow them to gain work experience as well as confidence.

Youth at Risk

Native Students

A number of programme initiatives have been introduced in the last few years by school boards, local communities and the Ministry of Education in an attempt to reduce the dropout rates among Native students. An official of the Ontario Ministry of Education informed us that counselling services for Native students are lacking in school boards and this dearth of counselling services has a negative influence on the size of the dropout rate of Native students. A one year pilot project introduced several years ago into a northern Ontario separate school board involved the hiring of a Native counsellor through the local Friendship Centre to work with Native students in a particular high school. The Board also provided academic upgrading with special tutorial classes at noon hour and after school. During the course of the project, a marked difference in attitudes of Native students was observed and the school experienced the lowest dropout rates among Native students in its history. When the project ended, dropout rates rose to pre-project levels.

The type of facilities and services available to Native students is often dependent on whether there are tuition agreements between the Indian bands and the local school boards. If tuition agreements are in place, certain services can be negotiated. Where there are no tuition agreements, Native students must rely on whatever services, if any, are available in individual schools.

Counselling

A Native counsellor from a high school in a large city in northwestern Ontario notes that many Native students entering this high school experience tremendous culture shock. Some of the problems they encounter include getting accustomed to city life, poor health, loneliness as a result of separation from their parents and extended family, and lack of acceptance into the White culture. Students placed in boarding homes have to adjust to living in an alien environment where lifestyles and food are different. The values and expectations of living in a large city are markedly different from those in a small community. The first months are particularly difficult, leading to feelings of loneliness, alienation, and lack of self-esteem. Many students turn to drugs and alcohol as a panacea; others return to the reserve or are called home by the band or their parents. Support services are essential for these students to take the place of families and ease the adaptation process. The school recently introduced a grade 9/10 Native Art course and grade 10 Native History course to help ease the transition into high school and give Native students an opportunity to gain an awareness of and pride in their culture.

Cooperative Education

While cooperative education has been very successful in provincial schools in Ontario, Native students have not until recently taken advantage of co-op opportunities. A former teacher and coordinator of a very successful co-op programme for a northeastern Ontario school board, designed a programme which specifically catered to the needs of Native students and the needs of their communities. He approached the communities and discovered that they wanted their students to receive quality education which would enable them to compete at par with all other students and also to obtain more of their education within their own communities and recognize some of the expertise that was there. The programme that was developed enabled students to go back to their own communities as part of their training. Based on the interests and needs expressed by the students, employers were approached to employ students on a co-op basis. Most of the employers were very cooperative and interested in participating in the programme. The co-op programme accommodated between 15 and 21 students in grades 11 and 12 for one full semester. Students were employed four days per week for approximately four weeks. Following that they returned to their communities and were employed in a similar capacity for an additional six weeks, then they returned to their original placement for the final six weeks. Many of the students who were on Co-op placements were invited to continue their jobs either during the summer or if they were in their graduating year in full-time employment. The Co-op programme had a significant impact on the students in terms of the choices they made when they completed high school. Rather than returning to their communities with no specific goals or plans, almost all the students in the programme had formulated specific career objectives.

The issue of prevention and intervention with respect to Native students dropping out is a major one. To fully understand the programme initiatives that are required to keep Native young adult learners from dropping out, one must concentrate on aspects that go beyond the realm of education alone. In understanding the schooling of Native youth, a holistic perspective is required. One must take into account demographic and socioeconomic conditions, the family, and the political economy between Native peoples and White society. Native schooling and youth cannot be viewed in isolation because so many factors impinge on their lifestyle, attitudes, values and motivation.

Dropouts

The various dropout prevention programmes in the Ontario English school system, are designed to serve many diverse student needs. Regardless of its focus, each programme is concerned with retaining the student within the educational system. Many programmes also attempt to respond to the needs of the returning dropout. Accommodating the needs of potential and returning dropouts is viewed as an entire process which must be explored.

Concerns Regarding Dropping Out

Throughout the interviews with programme participants and educators, a common concern regarding the student's potential decision to drop out was expressed. Educators maintained that exceptional students, including those who are considered gifted, have physical or mental disabilities, and students from culturally diverse backgrounds, specifically immigrant students, are a greater risk of dropping out. Programmes designed to meet the diverse needs of these students help retain them in the educational system. Therefore, when examining the educational needs of potential and returning dropouts, concerns focus on diverse populations within all aspects of the educational system.

The educational initiatives currently operating in Ontario include inter-relationships between various programmes. According to educators interviewed, alternatives are needed which allow choices in how to address the learning needs of each student.

Retention programmes may be within the mainstream schools, after school or remedial classes, or may be physically detached from the traditional setting. Alternative schools are one response to the needs of some students to learn in a more flexible, non-traditional environment. A programme director of an alternative school noted that,

> The educational system requires many alternative schools. You should not have to drop out, you should not feel as if you (student) do not belong and become alienated before you can get back in. What is required is a place (alternative programme) where people are trying to deal with your uniqueness.

Bureaucracy may make re-entry into the mainstream setting difficult if a student has left the system. As one programme director stated,

> It is very easy to drop out, but it is very hard to get back in...You have to wait until the next semester, the next year or they might not even want you back, because you were a troublemaker.

Even if the students want to return to school, the problems which caused them to withdraw are still present. Students are "exposed to the same teaching staff, the same culture, the same bureaucracy — so why should they go back?" Educators suggest that a degree of choice is needed. Alternatives which offer students the chance to benefit from teaching styles and environments which match their learning styles are required.

These educational alternatives assume many forms, each as unique as the student that it attempts to service. Alternative schools are both physically and ideologically detached from the mainstream situation. They provide many non-traditional learners a flexible learning environment. However, as noted in one of the interviews,

> There are all kinds of Alternative schools at the secondary school level and they are all wonderful, but none are housed in a regular school setting....but at least we have them.

This comment highlights a common concern which was observed throughout the discussions held with educators and students in various educational programmes. The diversity of teaching styles was seen as a positive initiative, but not when it resulted in completely isolating the learner from the larger educational context. This perspective was specifically noted in the comments of practitioners involved in programmes for exceptional students. This is not to suggest that students should never be withdrawn from the mainstream classrooms for any reason, but to emphasize that special programmes should never lose sight of their relationship within the larger educational process.

Links Between the School and Community

Some programmes dealing with the retention of 15 to 18 year old learners attempt to work with other aspects of the students' community. Students may drop out of school for a variety of reasons such as: employment, previous education, differing learning styles, cultural differences, personal problems and substance abuse. These students may find themselves ill prepared for employment and decide to return to school. Programmes for these 'drop-backs' are directly linked with other aspects of the educational system and community. For example, students considering dropping out for financial reasons, now find many schools offering contacts to part-time employment while allowing the student to remain in school. The learner can find support in how to balance a reduced workload with a part-time job. Moreover, many schools who have identified potential dropouts have initiated peer mentorship programmes...

> because those students who are at risk need a much more personalized approach and also a person at the high school level who will act as their mentor in a long term way...advising them on course selections or prerequisites for entering certain university programmes. (Interview with educator)

This allows students to help other students with their work and with any personal problems which may cause then to drop out. These programmes are also being used for returning dropouts to reduce the feelings of alienation within the academic and procedural maze which they are re-entering.

Many programmes are being run in conjunction with community colleges, and work to re-integrate the learner into a less alienating environment. These programmes may include teaching basic reading and writing skills or are directed at specific student groups such as youth who have been in treatment for mental illness.

Links between school and businesses are another recent educational initiative. Dropouts often do not have the basic skills to manage any level of skilled employment. Consequently, some educators are attempting to generate programmes with direct ties to the business sector, offering the learner skills development, financial benefits and motivation to remain in school.

It is evident that students are at risk of dropping out for many different reasons and dropouts cannot be classified as a homogenous group with needs that can be met in any one type of programming. A number of educators have stated that recognition of the diversity of student needs and flexible educational initiatives based on how the system can best accommodate these needs is required to retain the approximate 30 per cent of Ontario students who make the choice to leave high school before completion. Initiatives such as alternative schools, co-op programmes with community colleges and businesses, peer mentorship, English as a Second Language, and various remedial and enrichment courses represent some of the many existing efforts made by educators to retain students in school. Educators stress the need to operate programmes as integrated parts of the whole education process, rather than in isolation, if they are to be effective.

Special Needs and Youth at Risk Programmes within the Larger Educational Context

Description of a Successfully Integrated High School

The population of 15-18 year old learners in Ontario is not easily categorized, but reflects many diverse educational requirements. This diversity must not be overlooked. There does not exist a dyadic learner-need relationship, but rather a learner with multiple needs, all of which require attention by the educational system. This profile will examine how in the context of one school many diverse programmes exist, not to the exclusion of each other, creating a sense of community founded on a common belief in education.

The school is a typical high school, situated in a multi-cultural region, servicing a predominantly middle class population. While the high school was originally designed as a mainstream institution, changes in the educational needs of its students have resulted in radical changes in its total design and philosophy. Multiple programmes operating to meet the diverse needs of the students replace the standard general to advanced curricula programmes. The school houses an enriched programme, an integrated programme for students with physical and mental disabilities, a co-op education programme, and programmes to accommodate the needs of immigrant youth. While countless programmes exist throughout Ontario schools, what makes this school unique is the philosophy that all programmes are integral parts of the larger system. Programmes are not exclusionary, but complement other existing special needs and youth at risk programmes.

In this school multiple special needs and youth at risk programmes interact with regular education programmes. With respect to employment and retention strategies we found that all students were satisfied regardless of their programme's category. The mainstream classes have comprehensive cooperative education programmes designed to help the student to make informed career choices and to aid the transition from school to work. This concern is not isolated to the mainstream. Classes for gifted and physically and mentally disabled students also have co-op programmes.

Immigrant youth are participants in all levels of the school. In the mainstream system new Canadians use the same resources as do other students, relying on E.S.L. programmes when language barriers precluded their full participation. Many immigrant students are placed in the enriched programme.

If language becomes a problem then the gifted student is given private tutoring, while remaining in the programme. Students with physical and mental disabilities also have diverse cultural backgrounds. When asked what they do when there is a fundamental language barrier, a teacher responded,

> if a student has a problem with English, our course of action is dependent on their level of progress. On some occasions we use Native language teachers as linguistic guides, and also E.S.L. teachers are used. Problems with the students' ability to speak is something we can rectify, but the impact that this has on the family is far different. (Interview)

Teachers in all the programmes noted that immigrant youth and their families harbour differing ideas of the programmes, and in turn often regret their child's participation.

Conclusion

Some major themes emerge from the interviews conducted with students and educators in the qualitative component: All students belong in traditional or alternative mainstream high schools, however some may require additional access to differing types of programmes to meet their needs: Increased involvement of parents and communities at a number of different levels could result in increased retention rates, smoother school to work transitions for young people, better understanding of culturally diverse communities, higher occupational aspirations among minority students, role models and mentors for females, visible minority and disabled students. Teachers need support systems to cope with the increased workload and stress of a fully integrated system. Workteams, support groups, smaller class sizes, and more in-service training are some types of support recommended. The school community may benefit from student support systems such as peer mentor and peer buddy systems for recent immigrant students, drop-backs and students with disabilities.

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IV — A VISION OF REFORM AND EDUCATIONAL POLICY IMPLICATIONS

Youth between the ages of 15 and 18 years in Ontario vary widely in learning needs and strengths, in economic and ethno-cultural backgrounds, and in aspirations and expectations. Ontario's 34.1 per cent dropout rate, the highest in Canada, suggests that our present school system is not addressing these diverse needs. At the same time, it is well recognized that the number of students with varying needs, backgrounds, and expectations is increasing across the province. These trends have important implications for Ontario as a part of a competitive global economy. In responding to the needs of individual students, we also respond to emerging demands for a highly-qualified, adaptable, and motivated labour force.

The present educational system appears to accommodate best the needs of students who learn well in a traditional setting, one which is academically oriented, and focused on a more passive "listening" mode. It does not, however, offer optimal learning opportunities for students with other orientations, learning styles, backgrounds, or expectations. These students appear to be increasingly marginalized in a system that has failed to respond flexibly to their needs. Schools have not yet become vital participants in fostering a learning culture in Ontario.

The research findings of this report suggest a number of strategies and options through which the diverse needs of the population of young adult learners — including exceptional students and youth at risk — may be addressed in mainstream schools. Overall, a more innovative and flexible curriculum and school environment appear to be the key to appreciating and accommodating the differences as well as the commonalities among students in Ontario today. This section of this report reviews the common themes which emerge from the research, explores both a vision and more particular mechanisms that may support needed changes, and presents some directions for further study.

A Vision of Reform

From this research review, a vision of educational reform directed to increasing flexibility and responsiveness emerges. Basic to this vision is the idea that schools need to address the differing ability levels of students, their differing physical needs, their differing cultures and languages and their diverse needs with regard to transition points between school and work. A recognition of these factors, together with the fact that individual preferences influence the variation in styles of learning among students, suggest the need to develop a culture of learning based on new options and opportunities in the educational system.

While today's schools appear to strive to fit students into a uniform and monolithic system, the varying needs of the students appear to be relatively unrecognized and unaddressed. The research suggests the need for a more student-centred, more participatory educational process, enriched by its capacity to accommodate diversity and change. With flexibility and responsiveness as guiding principles of this process, schools will be able to more optimally meet the range of needs across students of different ages, origins, abilities, expectations, and backgrounds.

Recognition of differences as a regular part of learning styles and variations also offers flexibility in meeting the diverse learning needs of students without the connotation of negative differences. In this light, differences can be constructed as positive and fruitful. Finally, it provides an opportunity to see the school itself as a learning culture with the capacity to be transformed and enriched by the interaction and contribution of all students.

In this light, seven major themes have emerged in the course of this report:

- the need for an integrated approach to education as a process which attempts to acknowledge and accommodate all students in mainstream schools;
- the need to build strong linkages between schools and various sectors of the community: labour, business, industry, government and community organizations;
- the need for a life long learning approach to facilitate multiple entry and exit points to and from the formal education system;
- the need to adopt the life long learning approach to offer increasing opportunities for choice and self-initiative to students with maturity, to foster greater autonomy and strengthen and support their investment in their own education;
- the need to accommodate the diversity of learning styles among students in order to offer an optimal learning experience to all;
- the need for greater parental understanding and involvement in the student's education, with teachers as partners, and in the schools as community institutions; and,
- the need to address and eliminate class, gender, race and ethnic bias from the school system.

Each of these theme areas is discussed in greater detail below.

An Integrated Approach to Education

A major theme which emerges from this research is the need for a fully integrated educational system which can accommodate the diverse needs of all young adult learners. The review of literature on youth at risk makes it clear that an integrated approach is effective in retaining these students in the educational system. Segregation and stigmatization of students in specialized programmes or streams fails to foster the best educational experience for all students. Offering all students a place in traditional or alternative mainstream high schools appears to maximize mutual and individual strengths.

Full integration of exceptional students and youth at risk will require significant change and innovation at many levels. A balance with particular needs must be recognized. Students may require access to different types of supportive programmes within an integrated environment.

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Strategies or mechanisms which can effectively support this direction of change have been explored in the body of the report. These supportive programme options may require the provision of extra supports for teachers and students. Such supports may take the form of direct "service" orientation or training, team teaching, and increased support from use of community volunteers. Other strategies include increased support staff, smaller classes and peer mentoring and peer support among students.

One innovative programme model suggested in the research literature is a "revolving door" programme. This would offer the enriched "gifted" programming currently only offered to an elite minority of students to small groups from the broader population on a limited time basis. This option appears to have the potential to break down stereotypes and barriers across different segments of the current student body. Overall, the attempt to integrate the educational process for all students seems to offer increased opportunity for respect, choice, and engagement for all students.

The heterogeneity of the student population suggested by the data of this report points to some directions for further study. The range of difference itself requires further documentation, particularly with reference to the impact of factors of difference on the effectiveness of learning in secondary schools. The Ministry of Education may wish to explore these profiles with the view towards identifying areas requiring further research. Some suggestions are included in Section VI of this report.

In addition, more effective support for diverse student needs and school boards throughout Ontario could be offered by generating research-based profiles of 15-18 year old learners at the local level. While lack of available data precludes developing such profiles at present, this may become a long-range research goal to support school board policy development.

Finally, the literature review and qualitative research document the issues confronting youth at risk (particularly dropouts and dropouts that return) and exceptional students. The balance to be struck in responding to the special needs of students in an integrated setting can be informed by good research and evaluation strategies.

Improved Linkages Between Schools and Community

The boundaries between school and community have tended to be thick and impermeable. Many of the successful and innovative programmes in recent years have consisted of opening these boundaries. Schools can no longer function in isolation from their rapidly changing environment. Adaptation and flexibility appear to be key to ensuring that educational process is current and relevant to real needs. A whole range of options and new opportunities for linking the school and the community stem from seeing the school as an open system which can build upon the strengths of its community. In this light, learning opportunities for students outside of school walls can be acknowledged as valid educational experiences.

Youth employment is a central means, but not the only opportunity, for opening these boundaries. While past stereotypes about youth employment have led schools to dismiss or attempt to negate outside experiences, more recent research indicates that it is the quality of involvement, not its existence, which may make a difference. Employment which is school-connected can be a learning experience with many positive effects on young adult learners. In addition to the acquisition of skills and information, a positive employment experience can improve a student's self-esteem and confidence. Strengthening the relationship between schooling and employment can serve to make school more relevant to students' lives.

One ongoing multi-sectorial community initiative which is exploring ways of promoting linkages between Ontario schools and labour, business, industry and government is the CWCL, Community-Based Education for Work, Career and Life. This network begins with the premise that communities are under utilized as resources for career exploration. A small group of leaders in business, education, government and labour is working together toward a vision of:

> "...schools and students connected to the community and its people, through the inclusion of community members in the classroom, talking about their interests, expertise, and livelihood; and by taking students out of the school into the community to experience workplaces and the people who inhabit them." (CWCL, 1991)

A variety of more specific programmes utilize positive linkages between school and other sectors of the community to promote learning opportunities for students outside the school. These include: co-operative education, training and apprenticeship programmes, community mentors and various opportunities for involvement of community members in career education and the broader curriculum.

The options for developing positive and open links between schools and other community institutions are just now being explored. More work is needed to develop a broader framework for these reforms, especially one that links them to other themes for reform. The growing trend in part-time employment for secondary school students requires additional study. While there is a great deal of research in the U.S., very little research on the impact of the number of hours worked and the nature of work performed while studying has been conducted in Ontario.

Life Long Learning

As schools become more flexible with regard to expectations about students' pathways through the system, and about experiences which may be defined as educational, new issues are raised about the role of learning as a continuing process of growth and change. These in turn affect our vision of skills development as a function of a set educational period and of set institutions. In order to respond to rapidly changing demands of the labour force, no single set of skills can be expected to last a lifetime.

As a society, we have begun to acknowledge mature adults' need to continually update and upgrade their education. The rapidly changing economic environment makes it increasingly necessary for people to alternate periods of employment with periods of education. In this context, there is also growing recognition that learning occurs in many settings, many of them outside the classroom. For adults, we recognize the need for continuous learning in both formal and informal learning environments. This research suggests that the concept of "life long learning" be extended to include younger learners who are still in the formal educational system. For younger as well as older learners, the learning environment is larger than the classroom.

In examining the issue of the relationship between school and work in the lives of young adult learners, we need to step back from the details of schools' administrative and curricular requirements. Some school boards are beginning to look creatively at issues of school scheduling and to introduce innovations such as year-round schooling and other variations on the typical school schedule and calendar. There is considerably more room for flexibility in our expectations about the rhythm between school and work.

In Ontario, we operate with very rigid norms dictating a student's expected progress through the school system by chronological age. This operates in combination with our high dropout rate in the context of a need for an increasingly educated labour force. Innovative options to consider revolve around increased flexibility: to intersperse patterns of alternation between school and work; to create more room for combinations of part-time study with part-time work; and to allow for more points of transition to accommodate an easy re-entry into the educational system after a period of employment. Accompanied by appropriate support from school, a temporary exit from formal schooling need not necessarily be a negative, alienating experience for the young adult learner. Facilitating and supporting students in leaving school appears to make re-entry much more feasible.

This project excluded from its mandate the need to relate profiles to outcomes of schooling beyond the secondary level. However, more research on the outcomes of schooling (e.g., transition to work and further post-secondary education, apprenticeship training) is required.

Learning and Learning Styles

Learning styles theory addresses learning as an individualized social-psychological process. The learning process is framed within a biologically and developmentally imposed set of characteristics which define effective and ineffective teaching and learning strategies. Learning styles is a new concept in education. Clear consensus has not yet been reached among theorists and educators on what learning style is, and how it can be evaluated and applied.

Despite these cautions, preliminary applications of learning styles theory indicate that it holds promise as a way of bringing students and teachers together to improve students' academic achievement and motivation. Educators report considerable success with programmes based on learning styles theory. Many who have worked with learning styles in the classroom are confident that it is an effective and worthwhile educational practice. While additional research and evaluation will be needed, it would be beneficial to implement demonstration programmes using learning styles approaches.

The research demonstrates that students are diverse in their learning styles and needs. As an approach which acknowledges and accommodates the differences among students, learning styles has the potential of serving those students, including exceptional students and youth at risk, who are not presently served by the school system. Attention to differing learning styles appears to result in more appropriate education for students in general, as well as responding more appropriately to exceptional students and youth at risk.

Numerous models and approaches to learning styles-based instruction have been proposed. Implementation of learning styles into educational practice in Ontario will require the application and evaluation of a variety of approaches, including structural change at numerous points in the educational system. It would have implications for teacher training, curriculum design, instructional methods, assessment methods and student guidance. Beginning with teacher training, it must be acknowledged that the present preparation of teachers in learning theory is minimal. Whereas reviews of major theoretical positions are common across teacher preparation programmes in Ontario, the time devoted to such study does not allow for integration of theory and practice. The theory and application of learning style is not treated to any appreciable extent in Ontario Faculties of Education.

Teacher education at the pre-service and in-service levels should be reviewed in order to revise the manner in which cognitive development, personality development, and social development are treated: with emphasis on the application of theory to the learning situation. The study of learning styles could become a focus of attention in teacher preparation programmes. It is at the level of the individual learner that the contribution of learning styles may be felt. Theorists such as Piaget and Erikson lay the background of how the population of learners learn. Learning style theory and application draw in the details at the level of the individual.

Overall, learning styles theory appears to be implemented in two basic ways. On the one hand, the teacher may alter instruction to match the learning style of the student. The teacher may instruct the student directly on how to take advantage of personal learning style and how to add new learning strategies to an existing repertoire. The most popular approach to learning style is that developed by Dunn and Dunn. The approach, based on teacher manipulation of the learning environment, possesses a practicality easily recognized by teachers and others. It requires the teacher to match instructional environment to student learning style.

Alternatively, some systems in Ontario have adopted McCarthy's 4MAT approach. It requires that the teacher design lessons which include sections aimed at each of four different styles of learning. In this way, all course materials would be presented to students in ways which facilitate a range of responses and maximize learning for all students.

Additional work will be necessary to adapt learning styles theories to the classroom, including exploring approaches which could blend the Dunn and Dunn and the McCarthy views. Factors such as complexity of material, class size, range of student learning styles, and others will need to be evaluated as these practices are explored and evaluated.

The research and literature review on learning styles theory identified the latter as a fertile area for resolving current and future educational issues. The area is new, particularly in Ontario and is not well-researched. Support for these directions could be initiated with a built in evaluation component. If the evaluation shows learning styles theory and its application as successful in achieving desired learning outcomes, the appropriate applications could be broadened.

Literature reviews were curiously silent in two areas. First, the research team found little or no literature pertaining to the relationship of physical education to learning and learning outcomes. While there is a great deal of literature on this relationship at the *adult* level, research is sketchy at the secondary school level.

Secondly, little has been written concerning the impact of secondary level education on students enrolled in French immersion programmes. While only a very small percentage are now in secondary school, this proportion will grow and more research is required.

Increased Student Autonomy and Support

The period of young adulthood is a time when youth assume increased responsibility in many areas of their lives. As was illustrated in the various data bases, the years from 15-18 are marked by increasing assumption of adult roles, responsibilities and decision making. This is a time when young people begin making decisions about careers and education. Many form sexual relationships; some deal with issues of pregnancy and child rearing. Most drive cars and make choices about drinking, drugs and smoking. The majority of students are employed on a part-time basis. Some employed students make a financial contribution to their families, some live on their own. In their roles as secondary students, there is little scope for autonomy in decision making by the young adult learner. Both secondary school students and dropouts report feeling that they are treated like children in school.

The research suggests many ways in which the educational system can re-define the role of the young adult learner to provide increased scope for decision-making and meaningful involvement in school curriculum. Giving students choices in learning would make them significant participants in identifying their needs and in designing their educational programmes. The student-centred approach offers an opportunity to relate to the student not as a passive recipient of knowledge, but as an actor engaged in the learning process. Adoption of such an approach would make class rooms considerably more democratic and open settings. At the same time, students' involvement in schools as institutions may be an important option to consider, including participation on school boards and as representatives on curriculum and other school committees.

The previous point underscores a challenge to the myth of young adult learners as largely dependent and removed from the necessity of making adult decisions. Our profiles show that as young people move from adolescence to adulthood, the pressure to make adult choices increase across a variety of areas. More research is needed to clarify the emergence of new youth cultures and their relationship to a whole matrix of social institutions, the secondary school being one but not the only important institution.

Parental Involvement

Youth whose parents are not involved with their education are at greater risk of dropping out, or performing poorly, as documented throughout this report. Schools need to actively encourage the participation of all parents in the learning process. When opening the boundaries of the school to various groups in the community, it is important to also plan ways of supporting increased parent involvement in many aspects of their children's education. In many instances, parents and teachers appear to be adversaries rather than partners in the education of our children.

Increased parental involvement may also help to address the basic social inequities of our education system. The research makes clear that lower SES and visible minority students are disadvantaged within the educational system. Since research indicates that parental involvement in children's education is positively related to class status, facilitating parental involvement across all social class and visible minority groups may make a difference. At present, highly educated parents of academically-oriented students are more likely to involve themselves in their children's education, perhaps as a reflection of the middle-class culture of the conventional school system. What may be needed is a programme of outreach targeted to parents of those students who are marginalized in school.

The building of new partnerships between school and family can improve student retention in the school system while supporting parents in their parenting role. Our call for increasing and improving the role of parents in their children's learning is not an original one. In their recent review of critical directions for educational reform in Ontario, Penny Moss and Donald Rutledge (1991) observe that the connection between home and school is a key element influencing children's success in school, including secondary schooling. They write,

> "Schools alone are unlikely to solve the problems of under-achievement and dropping out. By aggressively initiating and sustaining the genuine and collaborative involvement of parents in their children's education we can reasonably hope to narrow the gap between the achievement of poor students and that of other students." (p. 143)

Equity

Closely related to the various other themes emerging from this research is the need for equity of opportunity in the school system. The research makes clear that discrimination on the basis of social class, race/ethnicity, gender and ability affect educational outcomes.

The problems facing marginalized youth in the educational system have their roots in institutional and systemic discrimination. Programmes such as Heritage language and English as a Second Language represent a beginning, but are insufficient to eliminate the alienation that leads some visible and ethnic minority, Native, and immigrant students to perform poorly or exit the education system prematurely.

Programmes are required which will actively foster a rich school environment that reflects the diversity of our communities. The research suggests a number of specific programme initiatives in this regard, including:

- integrating a perspective on diversity which fosters a recognition of different cultures, genders, races, ethnicities, abilities, and classes into text and curriculum;
- hiring teachers and counsellors who represent the diverse student communities, and can act as role models to all students;
- developing testing models that are free of class, gender and cultural bias which also take into consideration the differing ability levels of students;
- encouraging involvement from all sectors of the community in co-op work programmes, mentoring and curriculum development;
- actively encouraging the involvement of all parents in their children's schooling;
- educating teachers about the effects of discrimination in areas such as race, class, gender and ability level can have on student performance; and,

- increasing use of peer mentoring programmes.

Our literature review and data profiles also underscore the importance of placing the learning experiences of young adult learners into a context in terms of gender, ethno-cultural origin and socioeconomic status. As we move through a series of reference points in our historical development, the nature of these complex interrelationships change. Ongoing research by the Ontario Ministry of Education and other government agencies are critical in maintaining a dynamic learning culture, responsive to the changing needs of a diverse student body at the secondary level.

Conclusion

Implementation of the various educational reforms described in this report will produce a more student-centred, more democratic educational system with stronger and more effective links to the community. These principles of educational reform will also create opportunities for more collaborative strategies between students and for the nurturing of the strengths, and talents of all students. The resulting system holds the promise of equalizing educational opportunity for Ontario's increasingly diverse population. Effective reform requires the input of parents, students, teachers and the broader community. Formal education is only one facet of a continuous learning culture rapidly being fashioned in Canada.

While this report provides a vision and some general strategies and options for policy development related to 15 to 18 year old learners, it is clear that more detailed work will be necessary to develop the specific recommendations and mechanisms for change. In some areas, additional research will be needed to address the problems and possibilities identified here.

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Preface

The Policy Research Centre on Children, Youth and Families has prepared this report on contract to the Ontario Ministry of Education. The Centre's mandate is threefold: to develop a critical perspective on underlying policy issues; to stimulate, support and produce innovative research; and to foster partnerships and public awareness necessary for a strategic investment in children, youth and families. The Centre is an independent, non-profit institute funded by the Ministry of Community and Social Services in Ontario. It draws on the multiple perspectives of community agencies, corporations, foundations, governments, researchers, and advocacy organizations.

The issues surrounding education are key policy concerns, not only for the Centre and the Ministry of Education, but for many others invested in better educational outcomes for Ontarians. Insights for this report have been shaped and strengthened by many individuals who have volunteered their time and energy to the Centre. These include policy makers and researchers at the provincial and federal level, members and staff in Boards of Education across the province; principals, teachers, and students who discussed issues with us, members of our Research Council, and others. We acknowledge and appreciate their vital contributions to this report.

More directly, this project represents the combined efforts of research team members from many organizations across the province. While the names of the project team members and their responsibilities are listed below, special recognition goes to Mary Bunch, who kept a complex set of roles and responsibilities on track, as well as drafting and editing the report.

Executive Summary

Dramatic social, demographic, economic, technological, and other changes have placed increasing pressure on our educational systems over recent years. This report, commissioned by the Ontario Ministry of Education, assesses the context of these changes in light of educational and related profile data on 15 to 18 year old learners. In developing a perspective on the problems and opportunities which face us today, the findings of this report suggest the need for a more responsive and flexible approach to classroom instruction, to the school as a community institution with open boundaries, and to the diversity of learning needs, backgrounds, and expectations in our changing population.

This report is intended as a resource for both the Ontario Ministry of Education and the various boards of education within the province, to assist in the design of policies and programmes which respond to the unique social and psychological needs of secondary school students. The findings are interpreted within the context of learning styles theory and student profiles generated by statistical databases and literature reviews. The perspective is interdisciplinary.

This study constructs profiles of the 15 to 18 year old learner within the Ontario English educational system, grades 10 to graduation, by examining the available literature as well as a variety of quantitative databases, and qualitative interviews. Of particular concern are gender, ethno-cultural origin and socio-economic status variables and their relationship to young adult learners, particularly visible minorities, special needs groups, students at risk of dropping out and students who have dropped out and returned to school. In order to accomplish this task, the report is organized into five sections.

The first section of volume one summarizes social, technological, demographic, and structural transformations that have taken place in the province of Ontario, including increases in population as well as changes in family forms and youth cultures. Special interest is paid to the relationship between the school system and the variables of gender, socio-economic status and race/ethnicity. Following this, the literature on learning styles theory is reviewed. Learning styles theory is viewed in context of the major theories of human development.

Section two of this first volume provides reviews of Canadian and international literature on 'youth at risk' and 'exceptional students'. 'Youth at risk' include: dropouts; employed students, immigrant students', Native students. 'Exceptional students' include: students with physical and mental disabilities and gifted students. These reviews are set within the framework of learning styles theory and focus on the 15 to 18 year old learner, as well as the social and psychological factors internal and external to the school environment. Applications to education suggested in the literature are viewed through Bloom's conceptual framework of prevention, intervention and transition.

Section three consists of a qualitative research on current programme initiatives in Ontario schools serving youth at risk and exceptional students. Bloom's model (1991) of prevention, intervention and transition strategies provides a framework for qualitative interviews with educators, parents and students.

In the final section of volume one, a more unified vision of learning as a cultural and diverse process is explored in relation to themes that emerge from the research. The application of these to educational programming and policy development are then discussed. While no recommendations are made, options and strategies consistent with this vision are considered. Finally, a summary of research findings from the study and the gaps prevalent in the literature are identified, stressing areas in need of further study.

Volume one concludes with a bibliography of Canadian and international sources on the young adult learner.

Volume two consists of two parts. In part one, socio-demographic profiles of youth based on analyses of macro databases, including an Ontario/national comparison of this cohort are presented. These macro databases consist of: Statistic Canada's 1986 Census, 1986 General Social Survey Time Use Module, 1989 General Social Survey on Education and Work, as well as the 1989 Addiction Research Foundation Survey. Part two presents analyses of the micro or regional databases, including: The Transition of Native Youths to the Work World, Literacy of Youth in Care, Dropping Out As a Career Decision and Strategies for Prevention, Career Awareness and Knowledge of the Labour Market, A Longitudinal Study of High School and University Students and Survey of Science Students in the North.

I — EMPIRICAL COMPONENT

NATIONAL DATABASES

Introduction

In the first volume of this report, we have examined the social and psychological development and learning styles/needs of the 15 to 18 year old learner. In doing so, we have highlighted the unique and diverse needs of "youth at risk" and "special needs" groups. In this volume, statistical databases permit us to understand the context in which young adults are developing their sense of identity. The object is to construct profiles of this group in general and of subgroups in particular. The subgroup comparisons focus on differences based on sex, mother tongue, birthplace, socio-economic status, Aboriginal and visible minority status, and dropout versus student status. Such information will be useful to both policy makers as well as teachers working in the educational system.

The surveys examined include:

1 The Canadian Census (1986)
2 The General Social Survey: Time Use Module (1986)
3 The General Social Survey: Education and Work Study (1989)
4 Addiction Research Foundation Survey: Drugs in Ontario Schools (1989)

The first three databases are national in scope and permit us to focus on 15 to 19 year old students and dropouts in Ontario as well as make comparisons to those living in the rest of Canada. The last database is provincial in scope and permits specific analyses of youth at risk. Details of each data set are given with each study. We begin by first presenting the analyses of the 1986 Census data and go on to construct profiles from the General Social Surveys of 1986 and 1989. Finally, the provincial wide survey of the Addiction Research Foundation on Drugs in Ontario Schools (1989) is presented.

One of the advantages of the statistical data is that they highlight the serious changes taking place in the lives of most persons in this age group. It is at this age that young people experience a transition period between youth and adulthood. Many in this age group begin to consider moving away from parental control, or a least trying to limit it. It is the age during which ever increasing demands are being made on the learners time. Demands related to school are in competition with other new areas of interest, in which young adults wish to devote more and more time. There is greater temptation to 'skip' school to make time for other activities. Students begin to assert their autonomy and question the authority of teachers, principals and parents. At the same time, there is greater temptation to experiment with smoking, alcohol and drugs. Interest in romantic and sexual relationships, and spending more time with away from home with friends increases.

Most people learn to drive at this age. This allows for greater freedom but involves taking on more responsibility, and requires more money. The need to find part-time or full-time employment increases. Some are tempted to leave school completely.

At the same time, many realize that serious career decisions must be made. Should they focus their energies on paid work or school work? What is more important, time spent with friends, in a romantic relationship, with their families? Should one consider higher education, and if so, college or university? What type of employment/occupation should be chosen? In a society where one is bombarded by television, other media and advertising, and a variety of available material goods, one compares the advantages of immediate gratification and the delayed gratification promised by extending the educational period.

Young adulthood is also the age when one becomes concerned about physical appearance, and to some extent, health. Considering the strong influence of peers, this adds to the pressure experienced by young people.

The answers to these and other questions have direct relevance to the social and psychological development and well being of 15 to 19 year olds in the school system. These issues should be considered when creating a curriculum addressed to this group.

Comments About the Data

From each study the researchers were able to give information for the whole of Ontario and for both genders. In 1986 the census did not include a question on 'present school attendance.' We are unable to isolate the students in school from those who have dropped out. A crude measure of dropouts is used: people aged 15-18 who were in the labour force but did not have a high school diploma. This excludes the dropouts who are travelling, employed part-time, unemployed, or as in the case of many females, staying at home to care for their own child or younger siblings. On this basis there were 193,330 dropouts out of a total of 559,750 persons aged 15-18 in Ontario. This is 34.5 per cent. The proportion of dropout is often cited as being around 30 per cent.

The General Social Survey (GSS) databases allowed for a more accurate definition of dropouts. However, the data were pre-coded and we had to use the age category 15-19 rather than 15-18 years. We were able to identify those who had graduated from high school, those in school, and those who had left school prior to graduation. The latter category contained only 31,613 out of 614,952 persons aged 15-19 (5.1%), in the 1986 study, and 37,971 of the 536,128 in this age group (7.1%), in the 1989 study. The reasons for the large discrepancy in proportions of dropouts in the census data compared to the GSS data is unclear, but as described in the literature review on dropouts, there is considerable debate as how to define dropouts.

In the Addiction Research Foundation study (ARF) it is most regrettable that dropouts are not included. These studies are conducted in Ontario schools at two year intervals, and do not include students who are not in school or who are absent on the days the surveys are conducted. As there may be a high correlation between many of the factors examined in these surveys, and factors associated with dropping out, the omission is even more regrettable.

Not all the databases allow us to compare other sub-groups. In addition to comparisons by sex and by 'dropout' status, the census allows for comparisons of low/high family income, Aboriginals/others, charter (English/French) mother tongue groups/ non-charter mother tongue groups, Canadian-born/foreign-born, and visible minorities/others. The two GSS studies allow for comparisons by gender, mother tongue and birthplace.

Profile of Young Adults Based on Census Data

The Data

The 1986 Census is the most recent source of available data. Another Census was carried out on June 4, 1991 but data will not be available for some time. One disadvantage of the 1986 Census is that the question of 'school attendance' was omitted. That question does appear in the 1991 Census.

The available data consist of a 2 per cent sample. In order to have an idea of approximate whole numbers, sample numbers are multiplied by 50. Most data are presented here in the form of percentages.

The census profile of young adults covers four main areas: Regional characteristics; Family background; Socio-Cultural background; and Education including labour-force participation. The young adults in Ontario are compared to young adults in the rest of Canada, to the transition years cohort (ages 12-14) in Ontario and where appropriate, to the total population of Ontario. Detailed information can be found in Table 1 to Table 4 while the text refers to data that significantly characterize the groups. After making comparisons, a summarized profile of the Ontario young adults is given.

The above profile of young adults in Ontario is then broken down into important sub-groups, based on gender, family income, Aboriginal status, mother tongue, immigrant and visible minority status. We are not able to identify *all* dropouts, because the question on school attendance was omitted, however, we are able to identify Ontario young adults who are in the labour-force but who do not have a high school diploma.

It is important to consider the exact definitions of variables as defined by the census and of subgroups as created from census data; these definitions are to be found in the chart on page 5.

Approximate Numbers

As mentioned above, we multiplied each number by 50, since the data are based on a 2 per cent sample. On this basis the actual numbers should be as follows:

15-18 YEAR OLDS (YOUNG ADULTS)

	TOTAL	Age 15	Age 16	Age 17	Age 18
ONTARIO	559,750	146,250	140,500	134,050	138,950
REST OF CANADA	985,650	247,400	248,800	247,650	241,800

12-14 YEAR OLDS

	TOTAL	Age 12	Age 13	Age 14
ONTARIO	379,300	123,650	127,300	128,350

TOTAL POPULATION OF ONTARIO: 9,023,400

15-18 YEAR OLDS IN ONTARIO

SEX		MEDIAN FAMILY INCOME		ABORIGINAL		MOTHER TONGUE	
Male	Female	Below	Above	Yes	No	Eng./Fr.	Other
285,550	274,200	240,450	286,450	12,900	546,850	490,300	69,450

IMMIGRATION STATUS		VISIBLE MINORITY		DROPOUT
Canada	Foreign Born	Non Visible Minority	Visible Minority	
518,700	41,050	502,850	56,900	193,300

The Young Adult Profile

1. Comparisons

Young adults are unique in many ways and differ from those in lower levels at school. It is in this age range that individuals first begin to take on the responsibilities of adulthood. While those in younger age-groups are almost entirely dependent on elders, a good many young adults have had labour-force experience and a few have even taken on responsibilities of a family. It is also in this age-range that people are allowed to apply for a driver's licence. The 'maturity' of persons aged 15 and above is recognized by the census, which directs questions about educational achievement and labour-force activity to those aged 15 and above. In covering the four main areas, we first compare this age-

Definitions and Groups

DEFINITIONS

Young Adults	Persons aged 15-18 in Ontario and in the Rest of Canada.
Transition Years Cohort	Persons aged 12-14 in Ontario.
Residence	Based on the variable Census Metropolitan Area. Those not in a CMA are classified in Rest of Ontario.
Mobility Status	Based on where respondent was living 5 years before the census.
Family Type	The 'other' category here includes respondents who themselves were husbands, wives, male or female lone parents or NOT living in a family arrangement, living alone or with non-family members.
Major Source of Family Income	The 'other' category is comprised mainly of 'investment income'.
Total Family Income	Income of all family members aged 15 years and over
Ethnic Origin	Ethnic or cultural group or groups to which respondent or respondent's ancestors belong.
Visible Minority	Based on definition developed by Employment and Immigration Canada
Mother Tongue	First language or languages understood in childhood and still understood by respondent at the time of the census.
Home Language	Language or languages spoken at home at time of census.
Official Language Ability	Ability to conduct a conversation in English and/or French.
Highest Level of Schooling	Highest grade or year of elementary or secondary school attended or the highest year of university or non-university completed.
Labour-Force Activity	Population 15 years and over who in the week prior to census enumeration were employed, unemployed or not in the labour-force.

SUB-GROUPS

Median Family Income	The median family income for all young adults in Ontario was $42,543. This means that one half of the group had family incomes below this amount and the other half had them above this amount. Since data was provided in categories we used the $40,000 category to split the two groups, which are not exactly equal.
Aboriginal	Those classified as Aboriginal Ethnic origin in the census were compared to the rest.
Mother Tongue	Those responding English, French, English and French are compared to the rest.
Immigrant Status	Canadian-born and those immigrating before age 5 were compared to those immigrating age 5 and after.
Dropout	Respondents in the labour-force who had no high school diploma. Excludes those with no diploma but who are not in labour force, such as housewives, those travelling.

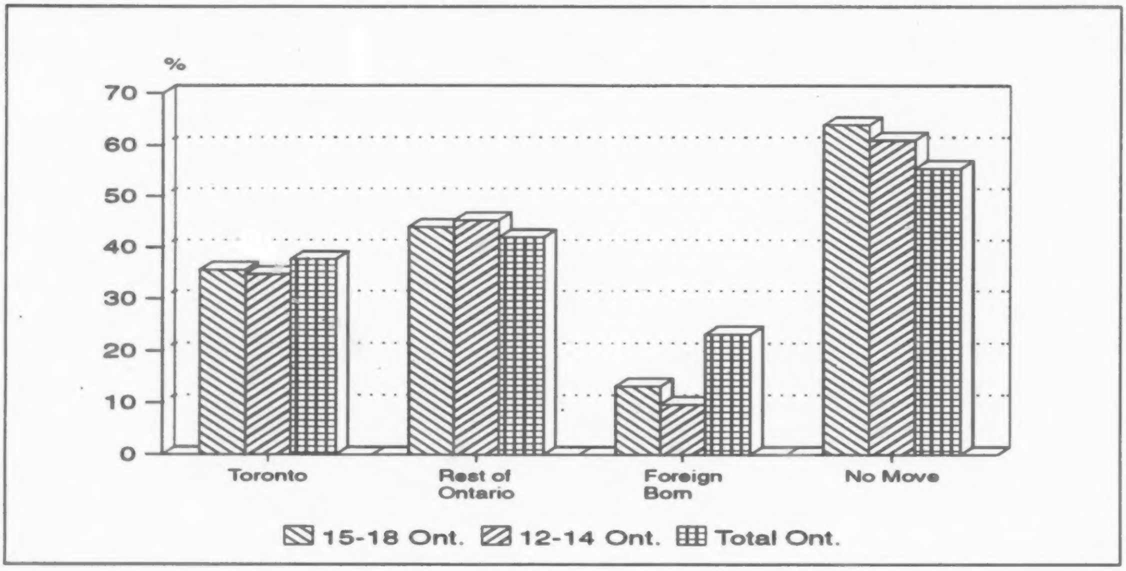
above is recognized by the census, which directs questions about educational achievement and labour-of Ontario and, in three areas, to all aged 15-18 across Canada. We then identify the main characteristics of young adults in Ontario.

Regional Characteristics

Young adults conformed to the general pattern of the population of Ontario and to that of the transition years cohort in terms of residence (Table 1).[1] But over 80 per cent of both younger age-groups were Ontario-born compared to only about 65 per cent of the total population of Ontario.

The young adult group included 13.2 per cent who are foreign-born compared to 9.7 per cent for the transition years cohort. Over 60 per cent of both younger age-groups had lived in the same dwelling five years earlier, compared to 55.5 per cent for the total Ontario population.

Figure 1 Young Adults: Regional Characteristics



Family Background

Young adults are typical of all Ontarians and of all 15-18 year olds in Canada when comparing proportions of the sexes (Table 2). Young adults in Ontario were in similar family types to all 15-18 year olds in Canada, but were more likely than the younger Ontario age-group to be in the 'other' category i.e. there were more in 'independent' situations (see definitions of family type).

The young adults in Ontario and in the rest of Canada were twice as likely to be living alone or in two-person families than the transition years cohort and in this respect were closer to the situation of the total population of Ontario.

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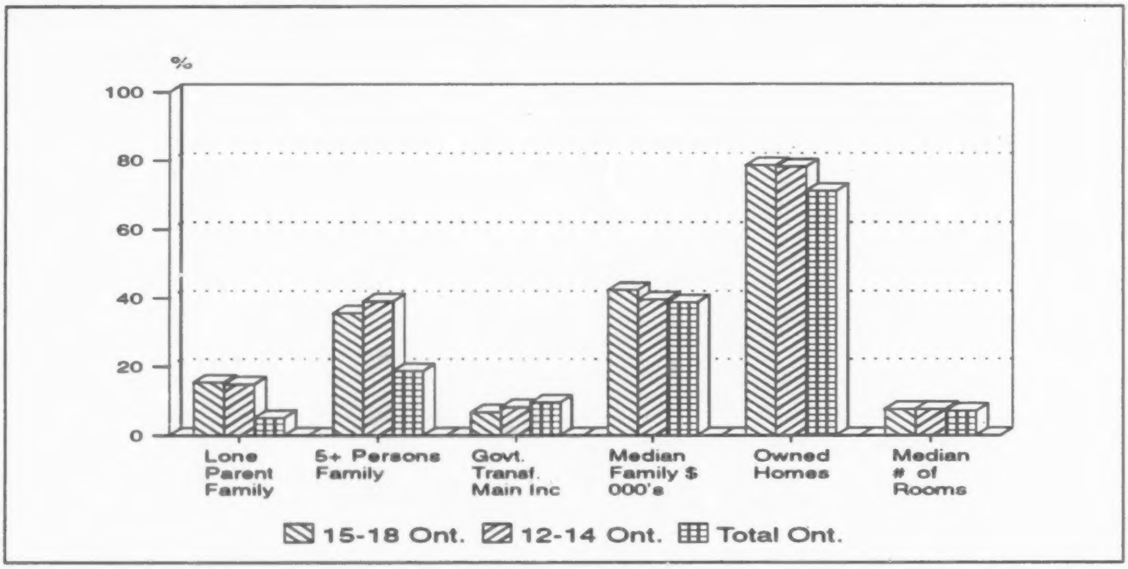
[1] All tables can be found in Appendix A.

Figure 2 Young Adults: Family Characteristics



When considering major sources of family income, it was obvious that those in Ontario were better off than those in the rest of Canada. Only 6.7 per cent of young adults and 8.2 per cent of the transition years cohort families in Ontario claimed government transfer as a major source of income compared to 13.5 per cent for young adults in the rest of Canada. The families of the two younger groups in Ontario also depended less on government transfer payments than the total population.

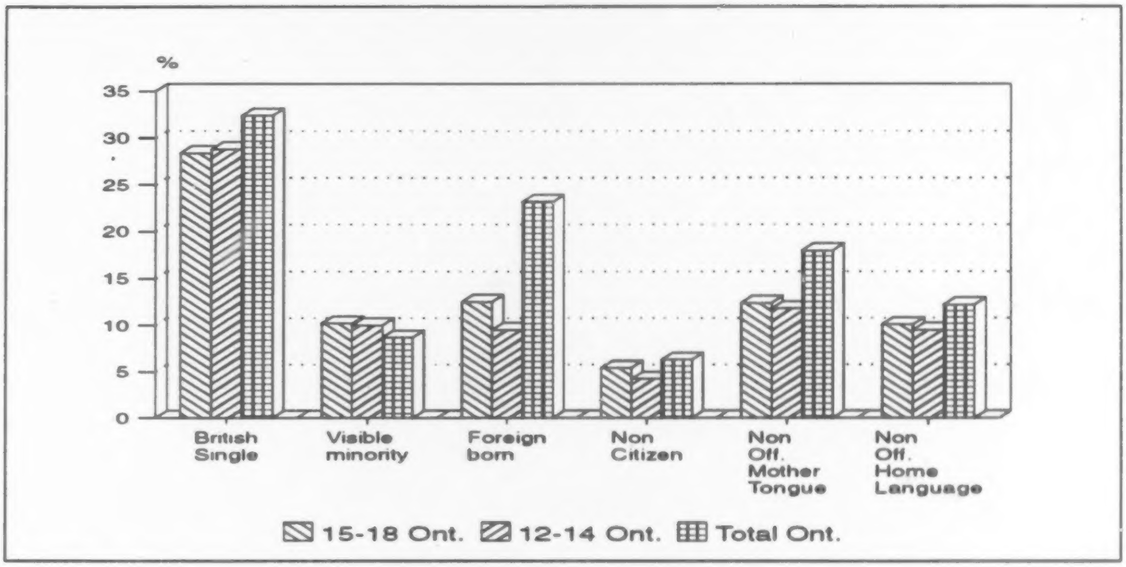
In terms of family income, the young adults in Ontario appeared to be doing well. Their $42,543 median family income was more than $3,600 better than the Ontario average and $6,800 better than that of young adults in the rest of Canada as well as $2,800 better than that of the transition years cohort. They had the lowest proportion in families whose family income was under $25,000.

This financially better situation was reflected in housing characteristics. The families of young adults in Ontario had the highest proportion who owned homes. Their families shared with the transition years cohort the highest values for homes, just under $2,500 higher than the Ontario average, but $30,000 higher than the average for homes of young adults in the rest of Canada. Of course, this could merely be a reflection of the differences in home prices across Canada. The Ontario youth groups were in homes with a median number of 7.6 rooms compared to 7.2 for young adults in the rest of Canada and 7.0 for Ontario as a whole.

Socio-Cultural Background

By single ethnic origin, there were proportionately more of British and fewer of French in Ontario compared to the rest of Canada (Table 3). The young adults in Ontario were characterized by 7.6 per cent more 'other European' ethnic origins than were the young adults in the rest of Canada. The two younger Ontario age-groups were more likely to mention multiple ethnic origins (40.6% and 41.8%) than the total population of Ontario (33.9%) and even more so than the young adults in the rest of Canada.

Figure 3 Young Adults: Cultural Characteristics



While three-quarters of the total population of Ontario are Canadian-born, for the three younger age-groups the proportion was closer to 9 in 10. Among younger groups, young adults in Ontario had a proportion twice as high (5.4%) as young adults in the rest of Canada (2.5%) who are of non-Canadian nationality.

Over 80 per cent of the two younger age-groups in Ontario had English as a mother tongue and home language and were unilingual. Among young adults in the rest of Canada, only 60 per cent were in that category, with 32.1 per cent having French as a mother tongue, 31.6 speaking French in the home and 22.5 being able to speak French only.[2]

There are interesting patterns for those with neither French nor English mother tongues or home languages. These were always highest for the total population of Ontario (18.0% and 12.2%) similar for the two Ontario youth groups (around 10-12%) but lowest for the young adults in the rest of Canada (8.6% and 6.7%).

Naturally, age of immigrant respondents influenced age at immigration and year of immigration. A comparison of the two similar-age groups, showed young adults in Ontario as having migrated earlier than young adults in the rest of Canada with 56.9 and 47.5 per cent, respectively, before 1976. The former also tended to immigrate at a younger age than the latter.

Education and Labour-Force Activity

Only 2.9 per cent of young adults in Ontario had done any post-secondary education compared to 10.7 per cent in the rest of Canada (Table 4). This, of course, is due to the difference in education systems across provinces. While there are no appreciable differences in the higher levels of elementary

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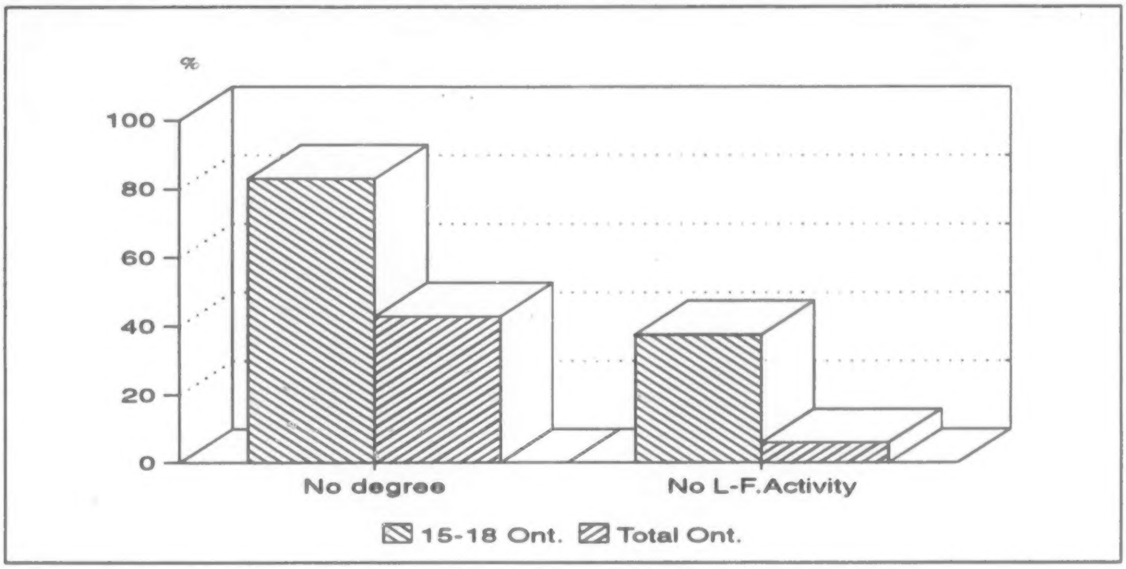
[2] The three questions relating to language are naturally influenced by the number of French in Quebec.

Figure 4 Young Adults: Education + Labour Force Activity



or secondary schooling attained, all data referring to post-secondary levels (years of university, non-university, trades) reflected the difference in provincial education systems, with those in the rest of Canada having slightly higher proportions in these post-secondary situations.

However, over 50 per cent of the young adults in the rest of Canada compared to under 40 per cent of young adults in Ontario had never had labour-force experience. In fact, at the time of the 1986 census, 38.7 per cent of young adults in Ontario were employed compared to only 26.3 per cent in the rest of Canada.

2. Profile of the Young Adult in Ontario 1986

Based on Census data we can characterize the young adults in Ontario as follows:

- Over 33.3 per cent resided in Toronto and 44.1 per cent did not reside in a census Metropolitan Area.
- One in seven were born abroad.
- Just under 66.6 per cent had lived in the same dwelling for five years, presumably attending the same school, and a further 20 per cent had moved only within the census division.
- One in six lived with lone parents.
- 10 per cent either lived alone or with only one other person but 12.6 per cent were in families of six or more.
- Only one in fifteen lived in families whose major source of income was government transfer.
- Their median family income was $42,543, just under $7,000 better than that of their cohorts in the rest of Canada.

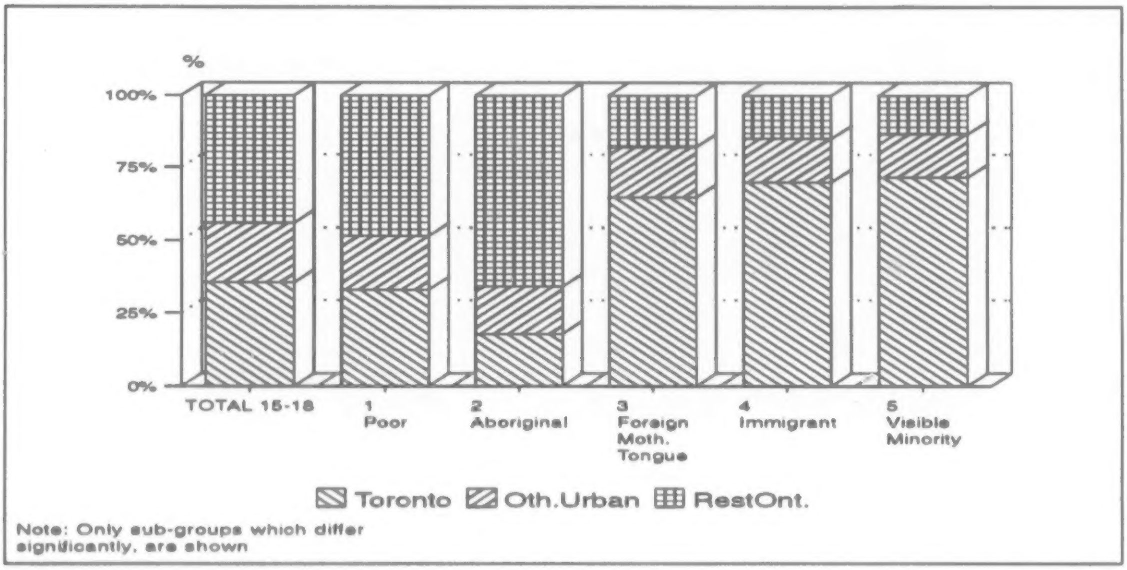
- They lived in homes where ownership, median value of homes and rooms per home were higher than that of the rest of Canada.
- Over one in four were of British single ethnic origin and just under one in five were of single other European origin. But four in ten were of multiple ethnic origin.
- One in ten could be classified as a visible minority.
- While eight in ten had an English mother tongue, one in eight had a mother tongue that was neither English nor French.
- One in ten spoke neither English nor French in the home and among the remainder, over eight in ten spoke only English in the home.
- Among immigrants, six in ten had come to Canada before 1976 and over four in ten were aged under five when they immigrated.
- Among all Ontario young adults, 6.6 per cent had already completed grade 13; 74.1 per cent had completed grades 10, 11 or 12; and 19.3 per cent had completed grade 9 or less.
- Among all Ontario young adults, 83.9 per cent had not yet graduated.
- Only 37.6 per cent had no labour-force experience while 46.1 per cent were in the labour-force.

3. Sub-group Analysis

Table 5 to Table 8 consider the total young adult group with various important sub-groups in Ontario. We will first consider each area by sub-group and then discuss profiles for sub-groups which differ from the norm.

Regional Characteristics

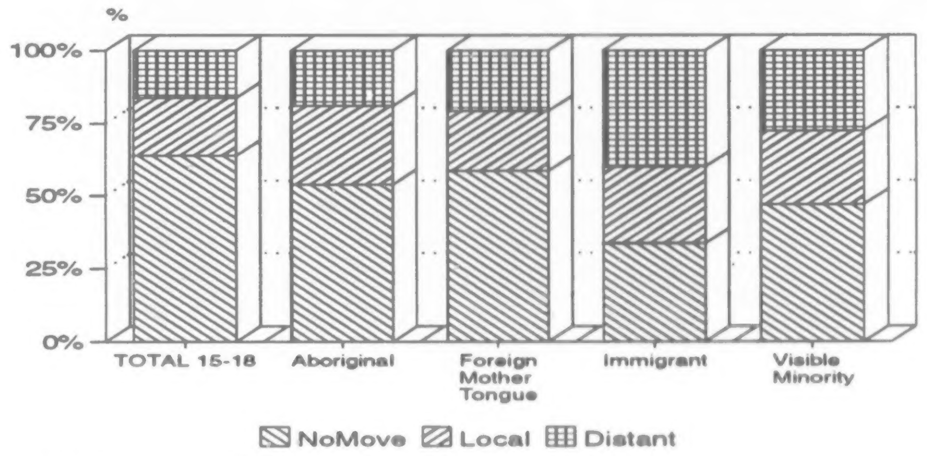
Figure 5 Subgroups: Regional Differences — Residence



Note: Only sub-groups which differ significantly, are shown

There were no regional differences by sex (Table 5). Persons with lower family incomes were more likely to be residing outside of the Census Metropolitan Areas (difference of 7.4%). They were also more likely to have moved in the previous 5 years, only 61.1 per cent are in the same dwelling compared to 70.0 per cent of those with above median income, with respective proportions moving from outside of Canada being 3.4 and 1.5 per cent. Those of Aboriginal origin lived predominantly in the rest of Ontario (65.9% compared to 43.6% of others). While 13.1 per cent of non-Aboriginals were born outside of Canada, 1.2 per cent of Aboriginals were foreign-born (born in the U.S.). Just over one half per cent of Aboriginals had lived in the same dwelling five years earlier compared to two-thirds of others. Two-thirds of those with non-official mother tongues lived in Toronto. Only one-third of those with official mother tongues lived in Toronto, almost half of these youth lived elsewhere in Ontario. While 85 per cent of those with official mother tongues were Ontario-born, 43.9 per cent of others were born abroad. Hence, there were strong differences in mobility, two-thirds of official language young adults had lived in the same dwelling 5 years earlier, 10.9 of others lived outside of Canada. Foreign-born young adults lived predominantly in Toronto (69.9%) while just under 50 per cent of Canadian-born lived in the rest of Ontario. Only a third of the foreign-born had lived in the same dwelling 5 years earlier compared to two-thirds of Canadian-born. Only 13.4 per cent of visible minority young adults did not live in a Census Metropolitan Area, as many as 71.5 per cent being in Toronto. 66.6 per cent of visible minority youth were born abroad while 87.0 per cent of others were Ontario-born. More than half of visible minority young adults had moved in the previous five years compared to one-third of others. When comparing dropouts to the general profile of young adults in Ontario, there were no appreciable regional differences.

Figure 6 Subgroups: Regional Differences — Moved in Prev. 5 Years

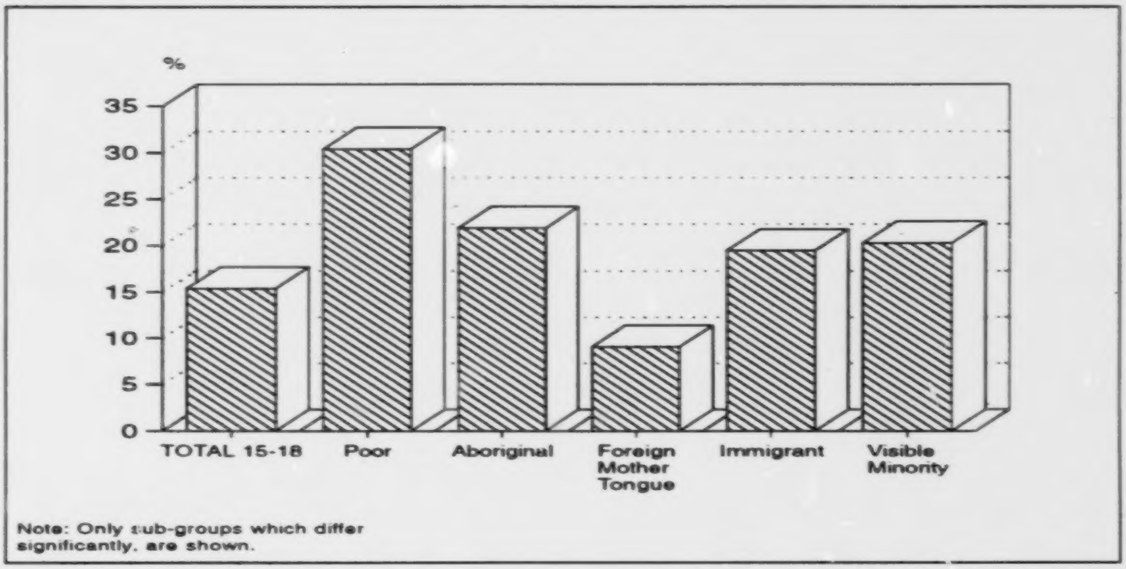


Note: Only sub-groups which differ significantly, are shown.
Local: Within Census Division

Family Background

There were no appreciable differences in family background characteristics of the sexes (Table 6). This is not the case for those with above and below median family income. While 95.5 per cent of young adults from richer families lived in a 'husband-wife' family type, as many as 25.1 per cent of those in poorer families lived with a female lone parent and a further 5.1 per cent with a male lone-parent. Just over 33.3 per cent of poorer family youth live in families of 3 or fewer persons compared to only 13.6 per cent of the richer group. While the major source of family income for the richer family group was wages and salaries (91.9%) as many as 14.5 per cent of the poorer group depended on government transfer. Differences in income are reflected in housing characteristics, since 91.6 per cent of the richer group, compared to 65.8 of the poorer, owned their homes. Among home-owners the former had average homes costing $113,333 compared to $81,034 for the latter and a median 8.2 rooms compared to 6.9 rooms.

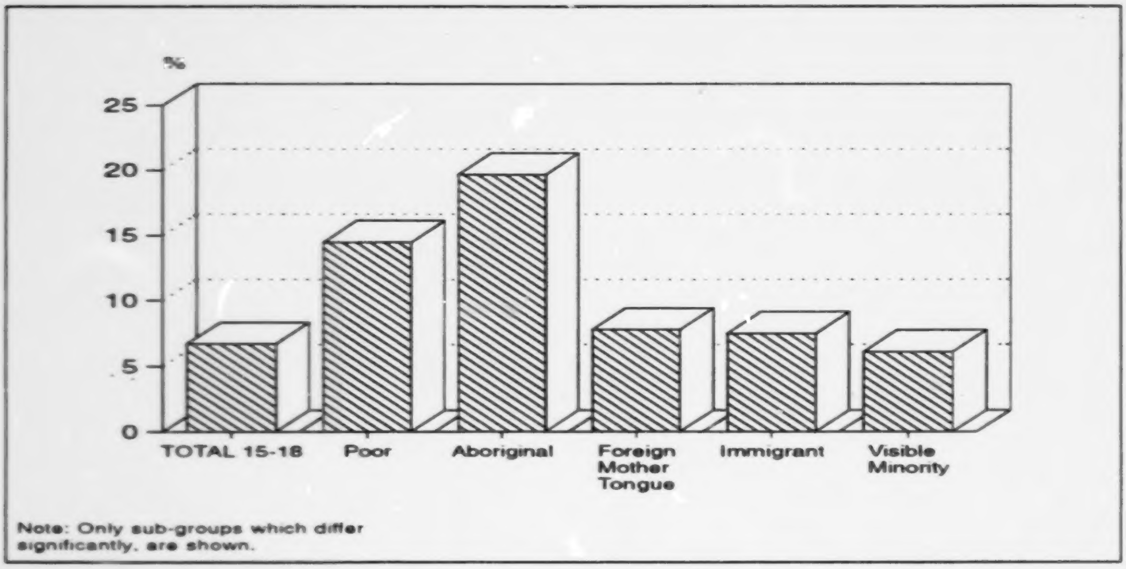
Figure 7 Subgroups: Fam Sit — Ages 15-18 in Lone Parent Families



Note: Only sub-groups which differ significantly, are shown.

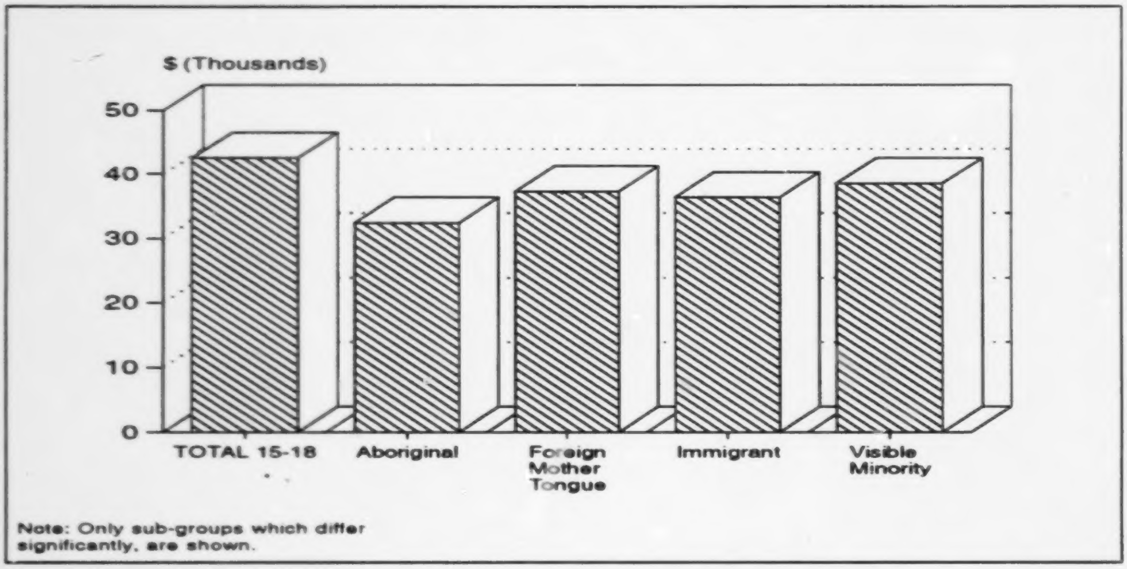
Poverty is reflected in the family characteristics of Aboriginals: 21.9 per cent of Aboriginal youth were in single-parent families compared to 15.3 per cent for others. But Aboriginal youth were more likely (12.0% vs. 5.5%) to be in 'other' situations, like having families of their own, or living on their own. Over 20 per cent of Aboriginal youth were in families of 6 or more, compared to 12.3 per cent for others. Just under 20 per cent of families of Aboriginal youth depended on government transfer as a main source of family income compared to 6.4 per cent for others. Median family income was more than $11,000 lower in Aboriginal families with almost two-in-five having family incomes of under $25,000 compared to one-in-five for others. Naturally, these differences were reflected in home ownership. Proportions who owned homes in Aboriginal and non-Aboriginal families were,

Figure 8 Subgroups: Fam Sit — Main Income Source: Gov't Transfer



Note: Only sub-groups which differ significantly, are shown.

Figure 9 Subgroups: Family Situation — Median Income



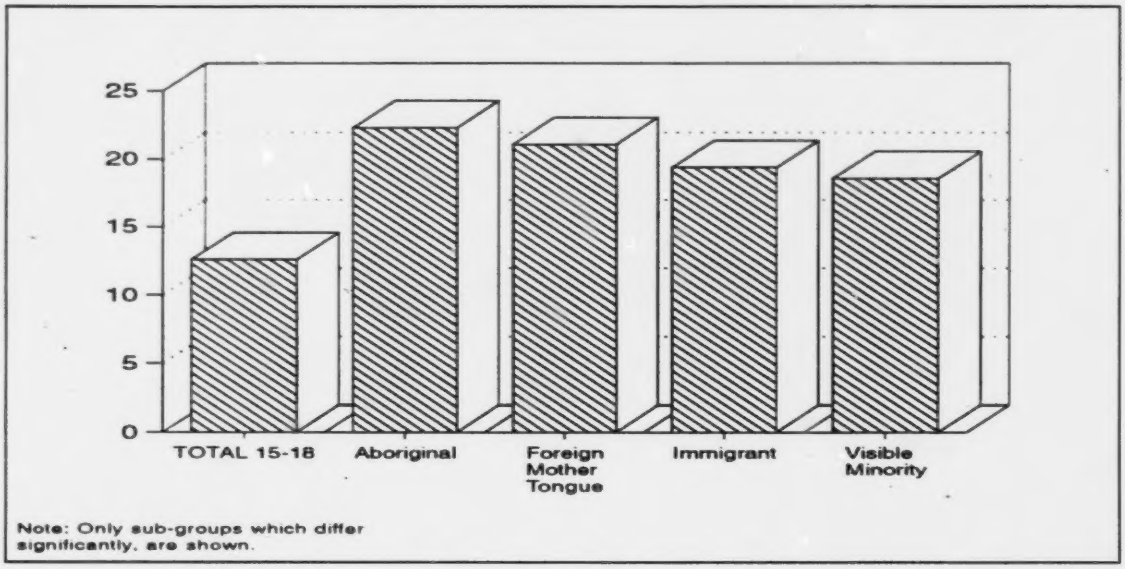
Note: Only sub-groups which differ significantly, are shown.

respectively, 58.3 and 79.1 per cent. Respective values of homes were $76,928 and $98,784 and median rooms per home were 6.9 and 7.6.

When comparing those with official mother tongues to others, the former were more likely to be living with lone-parents than the latter: 16.4 vs. 9.1 per cent. Those with non-official mother tongues also came from larger families: 47.1 per cent in families of 5 or more persons compared to 34.0 per cent. There were no appreciable differences in terms of source of family income, but the median family income of official language families was over $6,000 more than that of others. The two groups had more or less equal proportions owning homes and median number of rooms, however, the non-official language group families owned more expensive homes. Their median home value was just under $22,000 higher than that of official language families.

Just under 9 per cent more Canadian-born youth lived in 'husband-wife' families than foreign-born youth. Foreign-born young adults came from larger families: 44.1 vs. 34.0 per cent were from families of 5 or more persons. There were no appreciable differences in sources of family income, but Canadian-born youth came from families whose median income was just under $7,000 higher than that of foreign-born youth families. While 80.4 per cent of the former compared to only 56.2 per cent of the latter owned homes, the latter group owned homes that were more expensive: median value of $103,746 compared to $98,286.

Figure 10 Subgroups: Family Situation — Family Size 6+ Persons



Note: Only sub-groups which differ significantly, are shown.

Just over one-fifth of visible minority youth lived in 'single-parent' family types compared to 14.9 per cent for others. They also came from larger families: 44.5 vs. 34.7 were from families with 5 or more persons. Sources of family income did not differ, but median family incomes of visible minority youth were $10,000 lower. Only 33.3 per cent of minority youth lived in homes that were owned compared to 80 per cent for others. They also lived in homes with fewer rooms, but the value of their homes were higher: $118,750 compared to $96,966.

Socio-Cultural Background

There were few differences by sex when considering the socio-cultural characteristics of young adults. However, 23.7 per cent of females were able to converse in both of Canada's official languages, compared to 14.9 per cent of males (Table 7).

In examining the socio-cultural backgrounds of young adults, differences based on median family income were found only in language and immigrant characteristics. Adolescents from higher income families were 6 per cent more likely to have an English-only mother tongue and speak English-only in the home. Among all immigrants, two-thirds of those in higher income families had immigrated before 1976 compared to half of lower income family immigrants. While over half of the former had immigrated before age 5, this was just over one-third of the latter.

Few of the cultural characteristics applied to Aboriginals except that they were about 8 per cent more likely than others to have an English-only mother tongue and to speak English-only in the home.

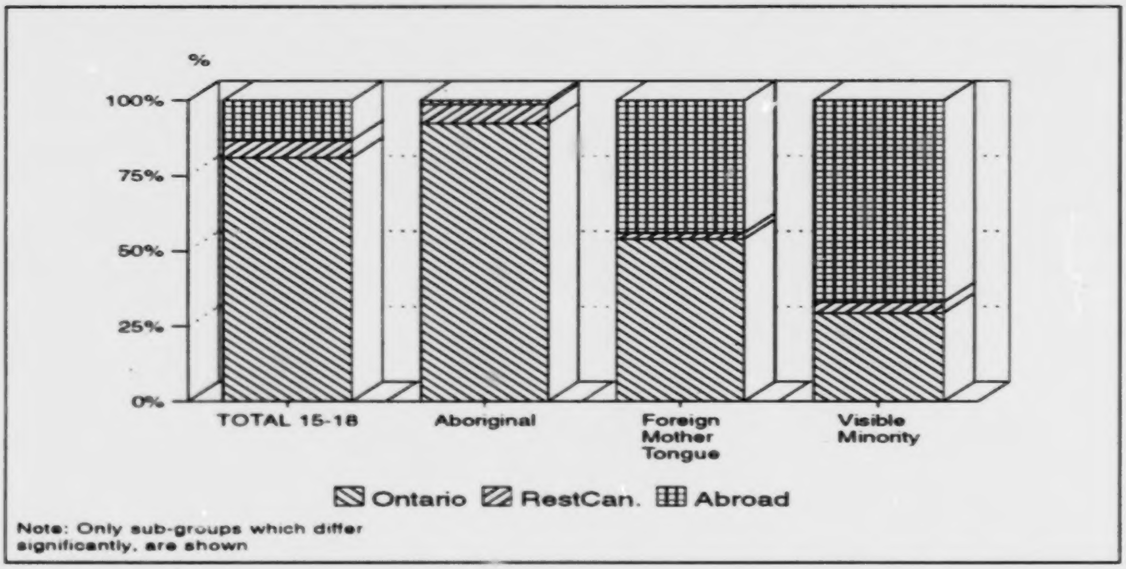
In comparing young adults with English/French mother tongues to the rest, the former were mainly of British-single (32.3%) and other-multiple (24.9%) ethnic origin. Among the 'others' 63.6 per cent were of European-single origin and 24.7 per cent of non-European single origin. Only 8.3 per cent of the European-single origin group could be classified as a visible minority, compared to 27.6 per cent of the 'other' group. Over 9 in 10 of respondents with official mother tongues compared to half of others were born in Canada. In fact, over a fifth of the latter did not have Canadian citizenship. Naturally, language spoken in the home had a strong influence: 92.9 per cent of the official language mother tongue group usually spoke English-only in the home, while 68.0 per cent of others spoke neither English nor French in the home. Among immigrants, 33.3 per cent of those with English/French mother tongue compared to 45.5 per cent of others had immigrated before 1976. Just under 50 per cent of the former and 31.7 per cent of the latter had immigrated before age 5.

While just under 30 per cent of Canadian-born were of British-single ethnic origin, well over half of the foreign-born were of non-European origin: 65.3 per cent of these were considered visible minorities compared to 5.8 per cent of the Canadian-born. Over half of the foreign-born still had the citizenship of another country. While 84.8 per cent of the Canadian-born had an English-only mother tongue, half of the foreign-born have a mother tongue which was neither English nor French. As many as 42.5 per cent of the latter spoke a non-official language in the home. Just under 20 per cent of Canadian-born could converse in both official languages compared to just over 10 per cent of foreign-born.

Over 71 per cent of visible minority youth had non-European single-origin ethnic backgrounds; 3.5 per cent were British. Only 33.0 per cent of visible minority youth compared to 93.3 per cent of others were born in Canada. Over a quarter still held citizenship of another country. 33.3 per cent had a mother tongue that was neither English nor French and 27.7 per cent spoke neither official language in the home. However, there were no appreciable differences when it came to official language ability. Among all immigrants, 25 per cent of visible minority youth compared to only 13.1 per cent of others had immigrated since 1980. While 55.0 per cent of the latter had immigrated before age 5, this was only 29.8 per cent for visible minority youth.

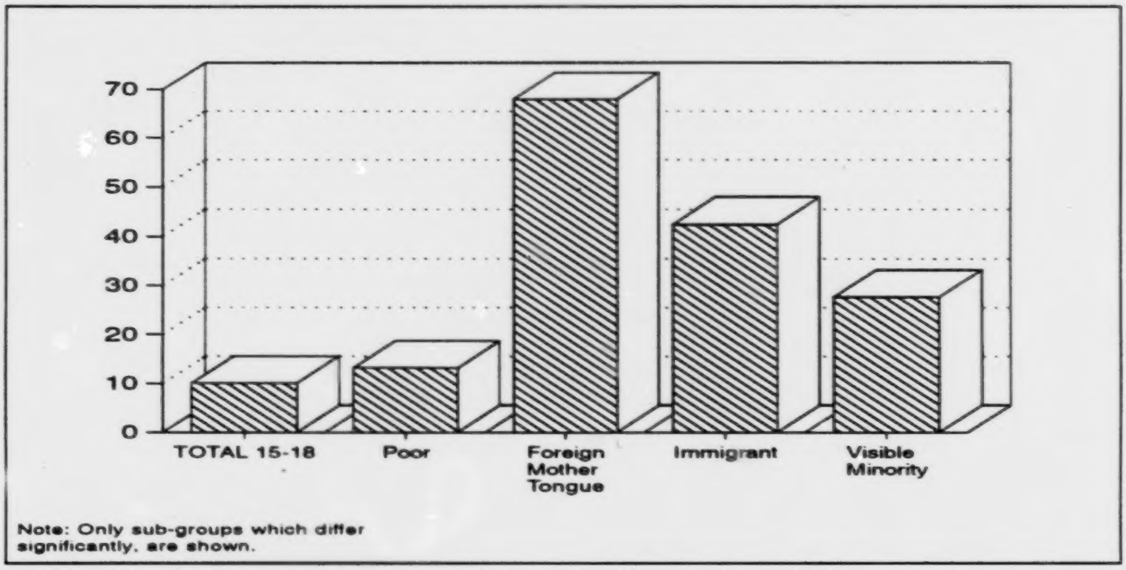
In the area of socio-cultural characteristics, dropouts did not differ to any degree from the norm.

Figure 11 Subgroups: Regional Differences — Birthplace



Note: Only sub-groups which differ significantly, are shown

Figure 12 Subgroups: Family Situation — Foreign Home Language



Note: Only sub-groups which differ significantly, are shown.

Education and Labour-Force Activity

There was little variation in education and labour force activity within any of the subgroups, since people aged 15-18 were more or less at the same stage in their education. In addition, as noted earlier, the 1986 Census left out a question on school attendance, but this question will be available in the 1991 Census.

There were no differences by sex. The only minor difference between young adults from below and above median family income families was in the area of labour-force activity. While 41.7 per cent of those from richer families were employed, 42.2 per cent of those from poorer families had no labour-force experience.

There were considerable differences between Aboriginal youth and others. Only 9.8 per cent of Aboriginal youth had a level of education beyond grade 13 compared to 17 per cent for others. While well over half (54.3%) of the latter went beyond grade 10, only 37.6 per cent of Aboriginals had done so. Only 9.0 per cent of Aboriginals had graduated, compared to 16.2 per cent of others. Among Aboriginal youth, 9.0 per cent were unemployed and 48.1 per cent had never had labour force experience, while these proportions for others were 7.3 and 37.3 per cent, respectively.

Mother tongue did not appear to make a difference for the two groups. Similarly, immigrant status made no difference except that approximately 7 per cent more Canadian-born youth were employed. The same applied to visible minorities; they were about 9 per cent less likely than others to be employed. Among dropouts, 83.1 per cent were employed.

Sub-group profiles

We complete this Census-data analysis with profiles of young adults who differed to some extent from the norm.

A. The Low Family Income Youth Profile

- A third resided in Toronto but just under one half did not reside in a Census Metropolitan Area.
- One in seven was born abroad.
- Just under 33.3 per cent had lived in the same dwelling for 5 years, presumably attending the same school, and a further 22.6 per cent had moved only within the Census division.
- Just over 30 per cent lived with lone parents.
- Just over 30 per cent were in families of 5 or more.
- As many as one in seven lived in families whose major source of income was government transfer.
- Only two-thirds lived in homes which were owned. Median value of homes was $17,500 below the norm and median rooms per home were .7 below the norm.
- Over a 25 per cent were of British single ethnic origin; just under 20 per cent were of single other European origin; 37.5 per cent were of multiple ethnic origin.
- Over one tenth could be classified as a visible minority.
- While slightly below 80 per cent listed English as their mother tongue, 16.7 per cent stated that their mother tongue was neither English nor French.
- Slightly over 13 per cent spoke neither English nor French in the home while 85 per cent spoke only English in the home.
- Among immigrants, just under 25 per cent came to Canada after 1981 and over 3 per cent after age 10.
- Only 4.8 per cent had completed grade 13; 72.6 per cent had completed grades 10, 11 or 12; and 22.5 per cent had completed grade 9 or less.
- Among these low-income family youth, 85.9 per cent have not yet graduated.

- While 42.2 per cent had no labour-force experience, 42.1 per cent were in the labour-force.

B. The Aboriginal Youth Profile

- Only 17.8 per cent resided in Toronto and 33.3 per cent did not reside in a Census Metropolitan Area.
- A very few were born in the U.S.
- About half had lived in the same dwelling for five years, had moved from outside their Census division.
- Just over 20 per cent lived with lone parents, but as many as 12 per cent were in situations without parents.
- Over 40 per cent came from families of 5 or more.
- Their median family income of $32,413 was over $10,000 below the norm for all young adult families.
- Just under one-fifth lived in families whose major source of income was government transfer.
- Less than six in ten lived in homes which were owned. Median value of homes was $21,500 below the norm and median rooms per home were .7 below the norm.
- Only seven per cent had a mother tongue other than English or French.
- Most spoke either English or French at home.
- Only 3.9 per cent had completed grade 13; 65.1 per cent had completed grades 10, 11 or 12; and 31.0 per cent had completed grade 9 or less.
- Among Aboriginal youth 91.1 per cent had not yet graduated.
- While 48.1 per cent had no labour-force experience, 38.5 per cent were in the labour-force.

C. The Non-Official Mother-Tongue Youth Profile

- 33.3 per cent resided in Toronto and only 17.9 did not reside in a Census Metropolitan Area.
- Over four in ten were born abroad.
- Less than six in ten lived in the same dwelling and over one in ten had moved from outside Canada in the past five years.
- Most live in 'husband-wife' families, only 9.5 per cent were in lone parent families.
- Just under half came from families of 5 or more persons.
- One in thirteen lived in families whose major source of income was government transfer.
- Median family income was $37,269, over $6,000 less than families of official language mother-tongue youth.
- The proportion of owned homes and median number of rooms were similar to the norm, but the value of owned homes was almost $20,000 higher than the norm.
- Just under two-thirds were of single-European ethnic origin and one-quarter of single non-European origin.
- Slightly less than three in ten were visible minority youth.

- One fifth did not have Canadian citizenship.
- Just under seven in ten spoke neither English nor French in the home.
- Almost all could converse in an official language and 18.6 were able to converse in both official languages.
- Among immigrants, over a quarter had come to Canada since 1981.
- Among immigrants, slightly more than 10 per cent came to Canada after 15 years of age.
- A similar proportion to the norm had not yet graduated: 83.6 per cent.
- Just over 40 per cent had no labour-force experience, while 44.5 per cent were in the labour-force.

D. The Foreign-Born Youth Profile

- Approximately 70 per cent lived in Toronto and only 15.0 per cent did not reside in a census Metropolitan Area.
- Only one third had lived in the same dwelling for the five years preceding the Census.
- Just under one-fifth lived in lone parent families.
- Over four in ten lived in families of five or more.
- The proportion of families who depended on government transfer was slightly higher than the norm.
- Median family income of $36,370 was more than $6,000 below the norm.
- Only 56.2 per cent lived in owned homes, while median number of rooms was one less than the norm and the median value was about $5,000 higher than the norm.
- Over half of foreign-born were of single non-European ethnicity.
- Two-thirds were visible minority youth.
- Over half did not have Canadian citizenship.
- About 50 per cent had a mother tongue which was neither English nor French.
- Over four in ten spoke neither English nor French in the home.
- Only 2.3 per cent could not converse in either official language.
- One third had immigrated to Canada since 1981.
- The proportion that had not yet graduated was 82.9 per cent.
- Over 40 per cent had no labour-force experience and 40.1 per cent were in the labour-force.

E. The Visible Minority Youth Profile

- Over 70 per cent resided in Toronto; only 13.4 per cent did not reside in a Census Metropolitan Area.
- Two-thirds were born abroad.
- Less than half had lived in the same dwelling and one-sixth had moved from outside Canada in the preceding five years.
- One in five lived in lone parent families.
- Over four in ten came from families of five or more persons.
- The proportion of families who depended on government transfer was below the norm.
- Their median family income of $38,556 was $6,000 below the norm.

- Only two-thirds lived in owned homes where median number of rooms was below the norm. But in owned homes, the median value was $10,000 above the norm.
- Over seven in ten were of non-European single ethnic origin.
- Only one-third were Canadian-born.
- Over one quarter had non-Canadian citizenship.
- One third had a mother tongue other than English or French.
- Just over a quarter spoke a language other than English or French in the home.
- Among immigrants, one quarter had immigrated since 1981.
- Among immigrants, a tenth had immigrated after age 14.
- The proportion that had not yet graduated was 84.8 per cent.
- Just under 50 per cent had no labour-force experience and 37.2 per cent were in the labour-force.

General Social Survey (1986): Time Use and Satisfaction

Introduction

Beginning in 1985, Statistics Canada has been carrying out nation-wide surveys under the title General Social Surveys (GSS). Following a five year cycle, these have encompassed the following topics: Health (1985), Time use, Mobility and Language (1986), Personal Risk (1988), Education and Work (1989) and Family and Friends (1990). The aims of these surveys has been to conduct research and to maintain statistical data banks on the quality of life of Canadians.

The Time Use Profile will be followed by the Education and Work Profile. The analyses are based on the 1986 and 1989 GSS respectively.

In our society, one of the most complex methods of gauging individuals' quality of life is through the examination of how they use their time and their perceptions of satisfaction in various areas of life. The 1986 General Social Survey permits us such an opportunity.

In the following section, the 1986 General Social Survey is used to construct a quality of life profile comparing young adults in Ontario who are in school and those who have dropped out. Comparisons are also made between students and dropouts in other provinces to those in Ontario. Finally, we examine important sub-categories of socio-demographic variables, including sex, mother-tongue and birthplace for students in Ontario. Figure 13 to Figure 22, which appear at the end of this profile, are bar charts summarizing the time use patterns of students/dropouts, males/females, those of English/French and other mother tongues and those who are Canadian and foreign born, living in Ontario. Table 15 and Table 16 summarize the patterns of satisfaction ratings for these groups and also appear at the end of this section.

An analysis of these data will result in the identification of detailed characteristics of young adult learners and youth at risk of dropping out. This information will then enable us to discuss options with regard to learning and teaching strategies that will meet the needs of these diverse youth groups.

The Data

The data examined in this section come from the second cycle of the General Social Survey, carried out by Statistics Canada between November and December 1986. Respondents were asked to describe their primary activities over a "designated" or "convenient" 24 hour period, beginning at 4:00 a.m.

Individuals in the sample were randomly assigned one "designated" or "reference" day, a randomly chosen day of the week for which they were requested to describe their primary activities. According to the procedures set forth by Statistics Canada researchers, each respondent was to be interviewed up to a maximum of two days after the "designated day" assigned. If this proved not feasible, the interview was scheduled for the following week on either of those two days. Alternatively, the respondent was interviewed in the last week on either of two days or on a "convenient" day — a day that was convenient for the respondent.[3]

Respondents were selected by random digit dialling and interviews were conducted with individuals 15 years of age or over who resided in a household in the ten provinces of Canada, excluding the North West Territories and the Yukon. The interviews were undertaken in either French or English, according to respondents' preferences. These diaries were then coded according to approximately 100 activities and divided into 10 categories, which included: paid work, domestic work, care of children, shopping and services, personal care, school and education, organizational, voluntary and religious activity, entertainment (attendance), sports and hobbies (participation) and media and communication. For the purpose of this profile, the time use categories have been recoded according to the following definitions:

- *Education*: Time spent in full time classes, part time classes, homework/assignments, leisure classes, other education (special lectures, homework for courses/career development, breaks) and travel related to education.
- *Paid Work*: Time spent in paid work, other paid work activities (overtime/looking for work, waiting/delays at work, idle time at work, coffee breaks) and travel related to work.
- *Housework*: Time spent in indoor housework (meal preparation, meal clean up/dishes/cleaning table, laundry/ironing clothes, mending clothes, other uncodeable housework activities), time in outdoor housework (outdoor cleaning, taking out garbage, home repairs/maintenance, gardening/pet care), and travel related to housework.

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[3] Before presenting the results of the analyses, it is important that the limitations of the data be delineated. Perhaps the most important of these is the fact that the survey was conducted on randomly chosen days of the week, with the results representing "average" days. Given that two of these days are Saturday and Sunday, which are typically "days off" for students in terms of school attendance, time use in school educational related activities (especially activities which take place on school premises, such as class attendance) may be underestimated. Similarly, since a large proportion of students may engage in paid work only on weekends, time in paid work may also be underestimated. Finally, given that some respondents may have reported no time use in certain activities, the use of averages may downwardly bias the results because the analyses are based on a subsample of a larger sample.

- *Child Care*: baby care, child care, other child care (helping/teaching/reprimanding child(ren), reading/talking/conversing with child(ren), playing with child(ren), medical care, unpaid babysitting), and travel related to child care.
- *Shopping/Services*: shopping (every day shopping, shopping for durable household goods), services (personal care services such as hair dressers, government and financial services, adult medical care outside home, other professional services such as lawyer, repair services, waiting or queuing for services, other uncodeable services) and travel related to shopping and services.
- *Personal Care*: personal care (washing/dressing/packing, private activity), essential sleep, relaxing (relaxing/thinking/resting and incidental sleep/napping), eating, restaurant meals, adult medical care at home, and travel related to personal care.
- *Organizational Activity*: organizational activity (professional/union/general, political and civic, child/youth/family, religious, fraternal/social, volunteer, other uncodeable organizational) and travel related to organizational activity.
- *Entertainment*: attending events (sports, music/fairs/concerts, movies/films, opera/ballet/drama, museums/art galleries), socialising with friends, going to bars, other social activities and travel related to entertainment.
- *Sports/hobbies*: sports/hobbies (sports/physical exercise/coaching, hunting/fishing/camping, walking/hiking, domestic home crafts, music/theatre/drama, games/cards/arcade, pleasure drives/sight seeing, other uncodeable sports activities) and travel related to sports/hobbies.
- *Media/Communication*: listening to radio/records, watching television, renting movies, reading books and newspapers (reading books/magazines, reading newspapers), speaking on telephone, letters/mail and travel related to media/communication.

Questions regarding perceptions of satisfaction with various aspects of respondents' lives were also posed. Respondents were asked the following questions. "How would you rate your feelings of satisfaction with regards to the following areas of life?":

1. health
2. job or main activity (i.e., being a student or employed)
3. the way they spend their time
4. their finances
5. housing
6. friendships
7. marital status
8. relationship with family members
9. self-esteem
10. life in general

The results were weighted for day of the week, number of eligible respondents in the household, number of telephones in the household, sex and age.

A General Overview of 15 to 19 Year Olds

The following weighted data are representative of all individuals 15 to 19 in Ontario and in the rest of Canada.

Approximate Numbers

15-19 YEAR OLDS

	TOTAL	IN SCHOOL	DROPOUTS
ONTARIO	614,952	514,144	31,613
REST OF CANADA	780,220	714,443	65,777

15-19 YEAR OLDS IN ONTARIO

SEX		MOTHER TONGUE		BIRTHPLACE	
Male	Female	French/English	Other	Canada	Foreign Born
250,485	263,569	522,322	92,613	447,340	66,804

Time Use for Students and Dropouts in Ontario Vs. Rest of Canada

The following is a description of time use patterns and perceptions of satisfaction by 15 to 19 year old students and dropouts in Ontario as well as those living in the other nine provinces. The time use data are presented in Table 9 and Table 10 and appear in Appendix A of this report. The data on perceptions of satisfaction for students and dropouts appear in Table 11.

Education

Most individuals aged 15 to 19 in Ontario (84%) and the rest of Canada (92%) reported themselves to be students. Given this, it is not surprising that a large proportion of their time is accounted for by educational activities. Students in Ontario reported spending 370 minutes per day in educational activities while those in the rest of Canada reported spending 383 minutes per day. Given that the "average" survey day also included Saturday and Sunday, as well as other days on which school may have been closed or respondents may not have attended, these statistics are conservative and could be higher.

In examining the time use of students in Ontario as well as the other nine provinces, it is clear that students generally spent the greater part of their education time in full time classes; students living in Ontario spent 194 minutes per day in full time classes while those in the other provinces spent 209 minutes per day. The differences in time expenditures in other educational activities for these two groups were small: 95 vs 90 minutes in homework and 31 vs 36 minutes in related travel for students in Ontario and those in the rest of Canada, respectively.

Dropouts also reported expenditures in educational activity, although these were relatively small. It is significant to note that dropouts in Ontario spent 30 minutes per day in education while those in the other provinces reported spending a surprising 86 minutes per day. Most of this time use for dropouts in Ontario was devoted to homework activity while for those in the other provinces, the majority of educational activity was spent in full time classes. For dropouts in Ontario and the rest of Canada, education related time expenditures likely revolved around job related study.

Paid Work

According to the 1986 Census, 39 per cent of young adults in Ontario and 26 per cent of those living in the other provinces were employed. However, an examination of their time use informs us that for that the most part, employment related activities accounts for only a small part of their day. In general, students in Ontario spent less than an hour (52 minutes) daily in paid work while those in the other provinces spend 39 minutes per day.

In examining 15 to 19 year olds who have dropped out of the school system, it is clear that they spend a large proportion of their day in paid work. Dropouts in Ontario spent 198 minutes per day in paid work while those in the other provinces spent 259 minutes per day. However, dropouts allocated less time to paid work than students allocated to educational activities. These statistics point to the fact that most dropouts were engaged in part-time employment.

Housework, Child Care and Shopping/Services

Household and family related work activities for 15 to 19 year olds in Ontario and the rest of Canada generally absorbed a small proportion of their daily time use. Relative to those in school, dropouts tended to expend the most time in housework, child care and shopping/services. Dropouts in Ontario spent just under 79 minutes per day in housework, while dropouts in the rest of Canada spent 52 minutes in housework. Students in Ontario and the rest of Canada spent 33 and 29 minutes per day respectively in housework. These statistics suggest that dropouts were more likely to be living independent of their parents, which places greater demands on them within the household.

Similar patterns were apparent for time use in child care and shopping. Dropouts in Ontario and the rest of Canada tended to spend more time in child care (7 and 9 minutes per day) and shopping activities (31 and 46 minutes per day) than students in Ontario (7 and 4 minutes per day for child care and 15 and 46 minutes per day in shopping).

Personal Care

In analysing this data set for the whole population Ornstein and Haddad (1991) found that in general the greatest proportion of time use for 15 to 19 years olds was spent in personal care. On average, young adults spent at least ten and one half hours in personal care activities. Students in the rest of Canada devoted the most time (670 minutes per day); followed by dropouts in the rest of Canada (664 minutes), students in Ontario (650 minutes) and dropouts in Ontario (626 minutes). The activity which accounted for the largest proportion of this time use category was essential sleep. Dropouts in Ontario spent the least amount of time (430 minutes) sleeping each day compared with

521 minutes for students in Ontario, 526 minutes for students in the other provinces and 538 minutes for dropouts in the rest of Canada.

Organizational Activity

Time use in organizational activity did not exceed 9 minutes for any of the subgroups, with the largest time expenditures (9 minutes per day) found among students in provinces other than Ontario and the least among dropouts in Ontario (0.0 minutes per day).

Entertainment

Time expenditures in attending entertainment activities are important indicators of the quality of individuals' lives. In examining the data, it is clear that dropouts in provinces other than Ontario spent more time in entertainment relative to other groups. Dropouts in the rest of Canada spent 104 minutes per day; dropouts in Ontario, 84 minutes; students in the rest of Canada, 70 minutes, and students in Ontario, 34 minutes. For all these groups, the majority of time expenditure in entertainment is concentrated in socializing with friends. Dropouts in the rest of Canada spent nearly 58 minutes per day socializing with friends; those in school in Ontario spent 50 minutes; students in the rest of Canada spent 38 minutes; and dropouts in Ontario spent 30 minutes.

Sports/Hobbies

Students in the rest of Canada spent 53 minutes per day in sports and hobbies, compared with 37 minutes for those in Ontario. Dropouts in the rest of Canada spent 44 minutes in this activity while those in Ontario spent 29 minutes.

Media/Communication

Students in Ontario spent 173 minutes per day in media/communication while those in the rest of Canada spent 160 minutes. Dropouts in Ontario spent 391 minutes in these activities, which is much more than the time they devoted to paid work. Dropouts in the rest of Canada spent 169 minutes in media/communication. The greatest proportion of this time for all these groups was allocated to watching television. Dropouts in Ontario reported spending 359 minutes daily watching television, relative to 137 for Ontario students, 125 for students in the other provinces and 138 for dropouts in the rest of Canada.

Satisfaction

In examining the data on satisfaction, we find that students in Ontario were most likely to report being very happy (53%), compared with 48 per cent for students in the other provinces. Only a small minority of dropouts (23% of dropouts in Ontario and 34% for dropouts in the rest of Canada) indicated feeling very happy with life.

A highly variable response pattern is noted with regard to respondents' self-rating of satisfaction in the ten areas of life. Students in both Ontario and the rest of Canada were generally much more satisfied with different aspects of their lives than were dropouts in both Ontario and the rest of Canada.

Students in Ontario and the rest of Canada rated themselves as very satisfied with their health (59% and 61% respectively). Dropouts, on the other hand, were less likely to feel very satisfied with their health; 50 per cent of dropouts in the other provinces stated being very satisfied and only 11 per cent of those in Ontario reported being very satisfied.

In terms of satisfaction with their job or main activity, dropouts in the rest of Canada were more likely to report themselves to be very satisfied than students in Ontario and the other provinces (32% and 37%) and dropouts in Ontario (20%).

Only a minority of youth aged 15 to 19 were very satisfied with their financial situations, with students in Ontario and dropouts in the rest of Canada least likely to report being very satisfied (18% and 16% respectively). Students in the rest of Canada and dropouts in Ontario were more likely to report being very satisfied (24% and 23% respectively).

The majority of 15 to 19 years old youth reported being very satisfied with their housing situations. Students in the rest of Canada were most likely to feel very satisfied (67%) as compared with 60 per cent of students in Ontario and 57 per cent of dropouts in the rest of Canada. Dropouts in Ontario were least likely to be very satisfied with their housing situation, with only 33 per cent reporting feeling very satisfied.

Friendships were rated as very satisfactory by the majority of youths, with 84 per cent of students in Ontario and 76 per cent of students in the rest of Canada reporting themselves as very satisfied. Relative to students, dropouts were less likely to report being very satisfied; 41 per cent in Ontario and 65 per cent in the rest of Canada.

Most youth were also highly satisfied with their marital status, although students tended to be more satisfied in this respect than dropouts. For example, 73 per cent of students in Ontario and 62 per cent of students in the other provinces claimed that they were very satisfied in contrast with 42 per cent of dropouts in Ontario and 47 per cent of dropouts in the rest of Canada

The majority of youth in Canada were very satisfied with family relations. Seventy one per cent of students in Ontario, 63 per cent of students in the rest of Canada, and 58 per cent of dropouts in the rest of Canada reported being very satisfied with how they related to their family.

With regard to self-esteem, students were most likely to report being very satisfied (51% and 56% respectively for those in Ontario and the rest of Canada). Dropouts, on the other hand, were least likely to rate themselves as very satisfied; 31 per cent for those residing in Ontario and 43 per cent for those in the rest of Canada.

Self-rating as very satisfied with life in general was generally higher for students than for dropouts. Students in Ontario were most likely to report being very satisfied with life as a whole (54%), as opposed to 44 per cent for those in the rest of Canada. Dropouts in Ontario were least likely to report being very satisfied with life (20%) as opposed to 29% for those in the rest of Canada.

Sub-Group Comparisons for Students in Ontario

This section describes the time use patterns as well as perceptions of satisfaction by the variables of sex, mother tongue, and birthplace, for students in Ontario. The data are found in Table 12 and Table 13. Table 14 presents the data on sub-group differences with regards to life satisfaction.

Education

In reviewing time use patterns in the context of sex, mother tongue and birthplace, there were notable differences among students in Ontario. Females tended to spend more time in education and related activity than males: 400 vs. 337 minutes per day. Those of English and French mother tongue spent more time in education than students of other language backgrounds (378 vs 309 minutes per day). Finally, students born in Canada spent less time in education than students born in other countries: 368 vs 379 minutes per day.

The majority of these time expenditures took place in the following order: full time classes, homework, related travel and other educational activities.

Paid Work

In examining the data on time use in paid work, it was noted that male students generally spent approximately one hour more in paid work per day than their female counterparts: 78 vs. 27 minutes per day. Students whose mother tongue was other than English and French spent only 8 minutes more in this activity than those of English/French mother tongue: 108 and 100 minutes per day, respectively. Those born in other countries spent 89 minutes per day in paid work while those born in Canada spent 46 minutes per day. Most of the time use in paid work for these groups took place in work for pay and other time at work.

Housework, Child Care And Shopping/Services

Time use in household related activities shows definite differences along the variables of sex, mother tongue and birthplace. Females devoted more time on average to housework and child care than males: 41 vs. 25 and 10 vs. 3 minutes per day. Males, on the other hand, expended more time than females on shopping and services: 18 vs. 12 minutes per day. In terms of mother tongue, we further noted that students whose first language was other than English or French spent approximately the same amount of time in housework as those of English/French backgrounds: 33 vs. 34 minutes per day. In terms of child care, English/French students spent more time in these activities than students of other backgrounds: 8 vs. 4 minutes per day. Students of other language backgrounds, however, spent more time in shopping/services than English/French students: 28 vs. 14 minutes per day. Students born in Canada averaged more time in housework and child care than those who were foreign born: 34 vs. 31 and 8 vs. 0 minutes per day. While students who were foreign born spent more time in shopping and services than those who were Canadian born: 38 vs. 12 minutes per day.

Personal Care Activity

In examining time expenditures in personal care activity, substantial differences were noted between females and males, English/French and other language backgrounds and Canadian and foreign born students. Females generally allocated about one hour more to this activity than males. Students of other mother tongue backgrounds spend about one half hour more than those who were English/French, and foreign born students spent three quarters of an hour more in this activity than those who were Canadian born. The bulk of this time expenditure took place in essential sleep. In examining essential sleep, it is clear that this activity also accounted for these differences, with males spending almost one hour less time in sleep than females, students of other language backgrounds spending about three quarters of an hour less in sleep than those of English/French backgrounds. Foreign born students however, spend only 5 minutes more in this activity than those born in Canada. The major differences in time use for the variable of birth place appeared to be in dressing and washing, with foreign students spending half an hour more time in this activity.

Organizational Activity

This activity accounted for a very small proportion of Ontario students' time use. It is interesting to note that females devoted more than twice as much time in this activity than males: 8 vs. 3 minutes per day. English/French students spent the same amount of time as those of other mother tongue backgrounds: 5 minutes per day. The greatest difference was between foreign born and Canadian born students with those of foreign birth spending about 15 more minutes per day in organizational activities than Canadian born students.

Entertainment

Time expenditures in entertainment differed for males and females as well as Canadian and foreign born students. There was a half an hour overall difference between English/French and other language backgrounds. In general, males spent over half an hour more time in entertainment than females: 108 vs. 62 minutes. Canadian born students spent nearly half an hour more in this activity than foreign born students. The bulk of this time was spent in socialising with friends, attending events and related travel. Males tended to socialise more than females, Canadians more than foreign born students, and students of other language backgrounds more than English/French students.

Sports/Hobbies

Males averaged more than twice as much time in sports and hobbies than did females: 58 vs. 17 minutes per day. Those of English/French mother tongue spent about 24 minutes more in these activities than students of other language backgrounds. Students of foreign birth spent about 5 minutes more than Canadian born students in sports and hobbies. Most of this time was spent in direct sports/hobbies, while the rest was related to travel.

Media/Communications

Media/communication accounted for nearly three hours of the average Ontario student's day. Males spent about forty minutes more in this activity than females. Students whose mother tongue was English/French spent over an hour more than students of other language backgrounds, and Canadian born students spent an hour and a half more in media/communication than foreign born students. The majority of this time was spent watching television, with English/French students spending the most time each day watching television (193 minutes), followed by Canadian born students (145 minutes), males (153 minutes), females (121 minutes), other mother tongue (117 minutes) and foreign born students (86 minutes per day)

Satisfaction

Sub-group analysis of students in Ontario demonstrated that most were very happy with their lives. However, males were more likely than females to report being very happy (59% vs. 48%), students of other mother tongue were more likely to report being very happy than English/French mother tongue students (63% vs. 50%), and students who were foreign born were more likely to be very happy than those born in Canada (78% vs. 50%).

In turning to self-ratings of satisfaction with different aspects of their lives, the majority of students in Ontario rated themselves as very satisfied with their health, time use, housing, friendships, partner/single status, family relations, self-esteem and life in general. The areas in which the lowest percentages of satisfaction were reported include: job/main activity, and finances. On the issue of job/main activity, the response patterns were very clear; only a minority reported being very satisfied. In more closely comparing the sub groups, we noted that males were more likely to be very satisfied than females (35% vs. 29%); students of English/French mother tongue more satisfied than other mother tongue students (34% vs. 23%) and foreign born students were more likely to be satisfied than those Canadian born (40% vs. 31%).

The remaining aspect of life satisfaction pertained to finances, with an even smaller minority rating themselves as very satisfied. The sub group comparisons showed the following patterns: males were more likely to be very satisfied than females (20% vs. 16%); those of English/French mother tongue were more likely to be very satisfied than those of other mother tongue (21% vs. 10%); and Canadian born students were more likely to be very satisfied than those born elsewhere (18% vs. 17%).

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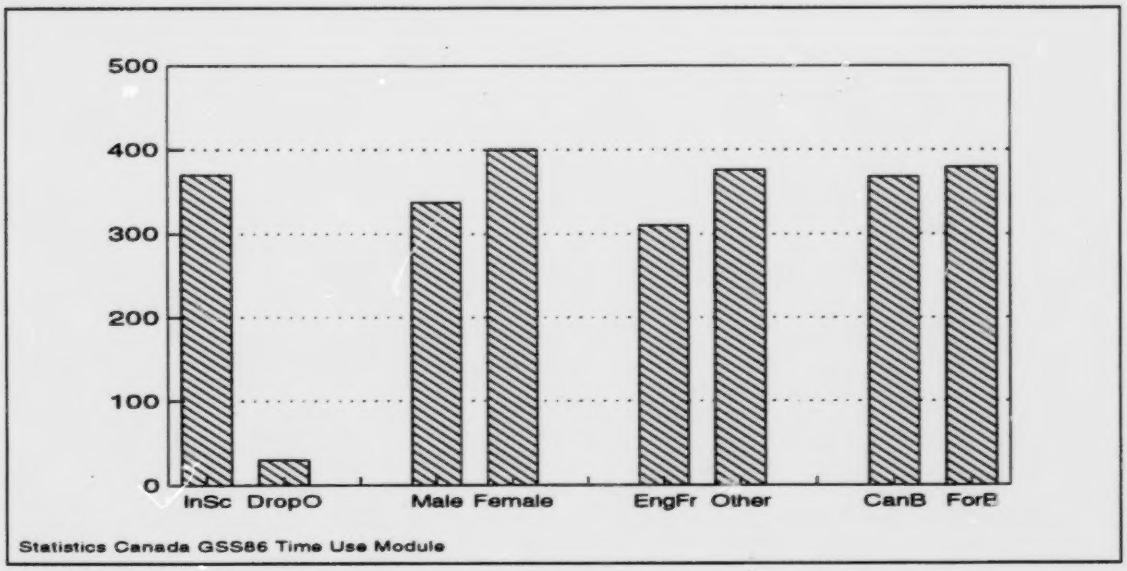
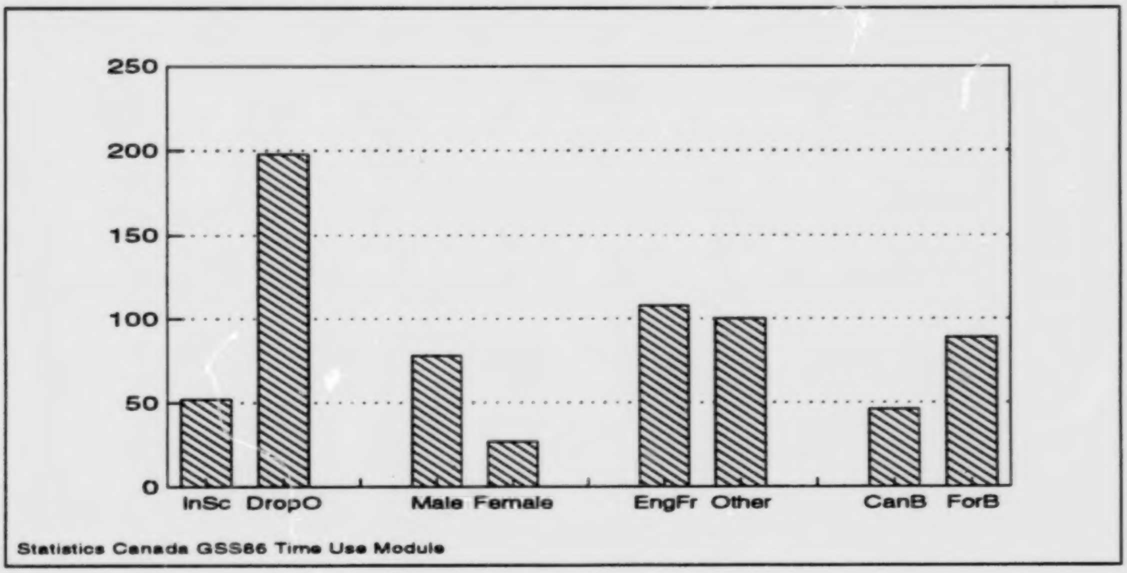
Figure 13 Minutes per Day in Education



Statistics Canada GSS86 Time Use Module

Figure 14 Minutes per Day in Paid Work



Statistics Canada GSS86 Time Use Module

Figure 15 Minutes per Day in Housework

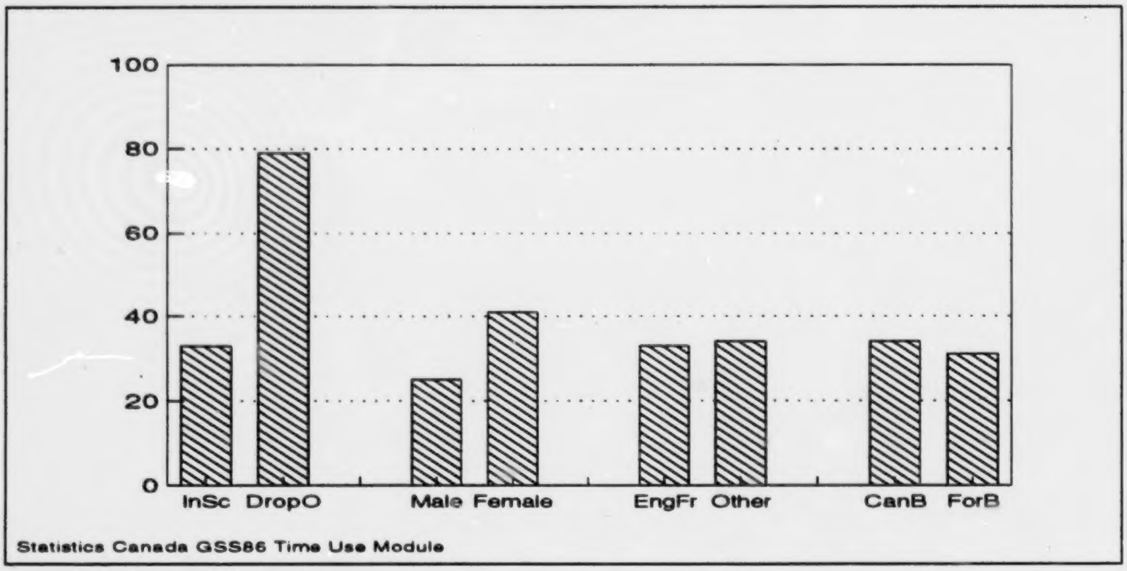


Figure 16 Minutes per Day in Child Care

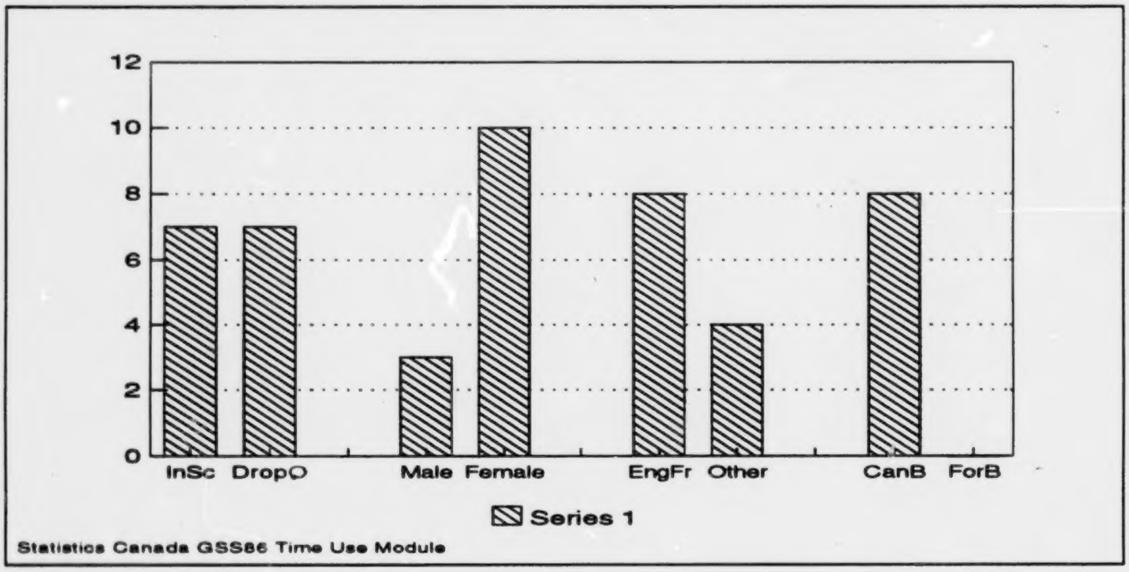
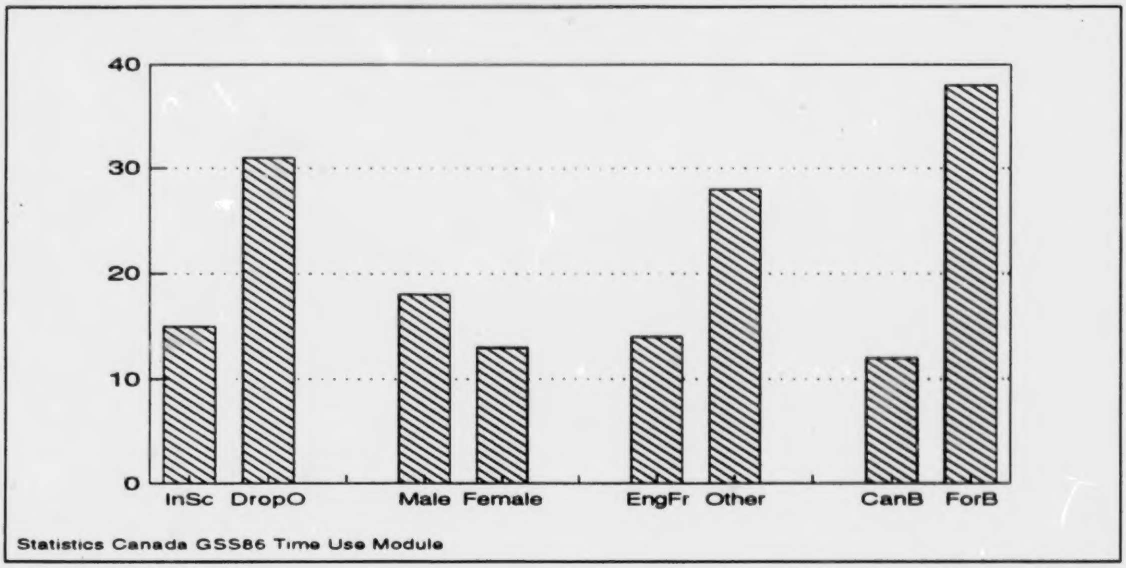
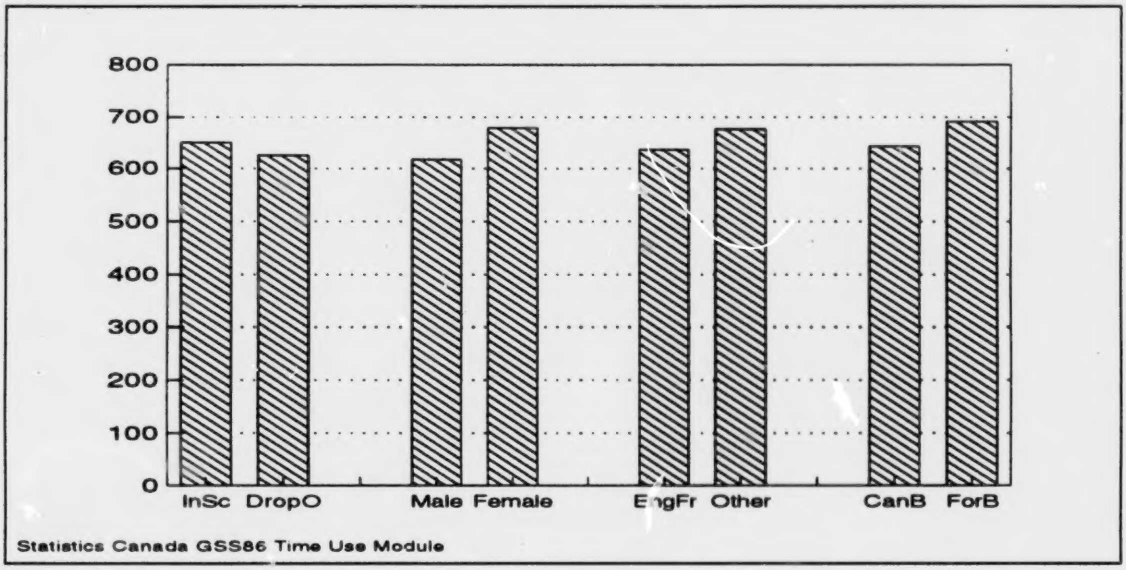


Figure 17 Minutes per Day in Shopping



Statistics Canada GSS86 Time Use Module

Figure 18 Minutes per Day in Personal Care



Statistics Canada GSS86 Time Use Module

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Figure 19 Minutes per Day in Organizational Activity

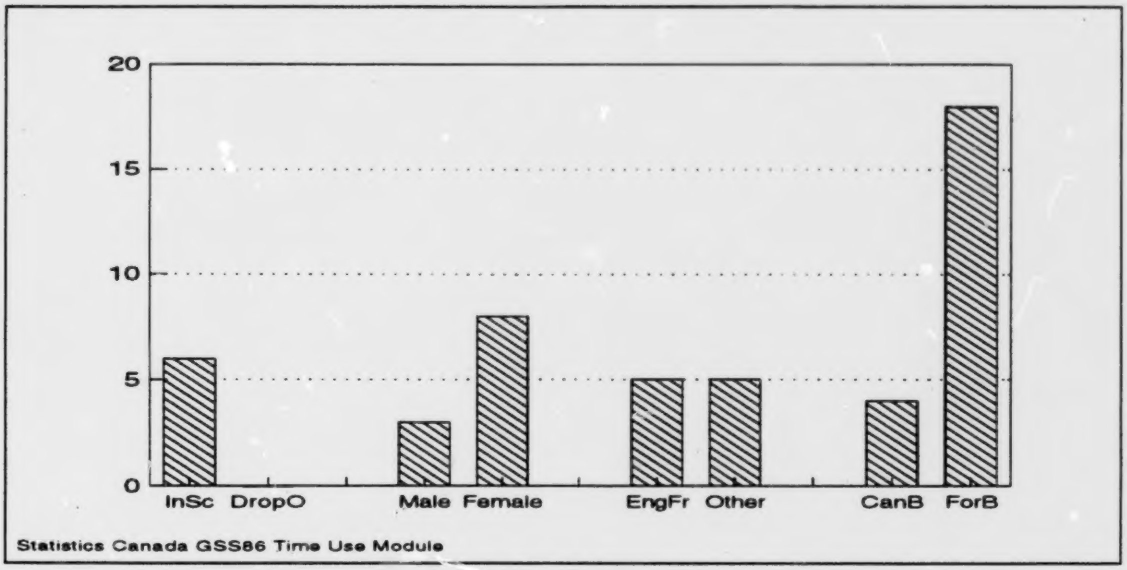

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Figure 20 Minutes per Day in Entertainment

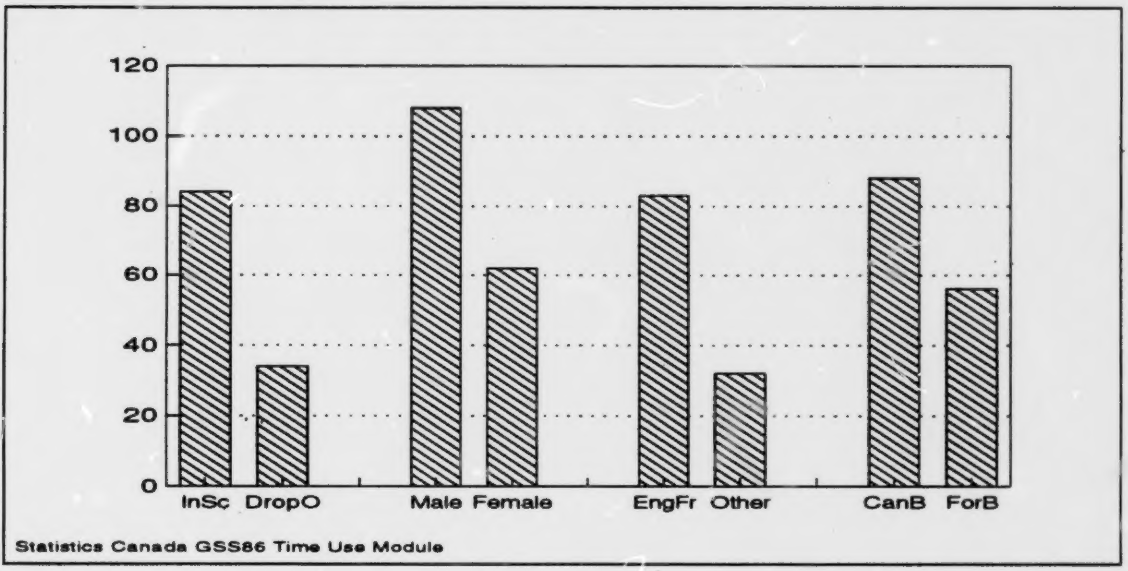

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Figure 21 Minutes per Day in Sports/Hobbies

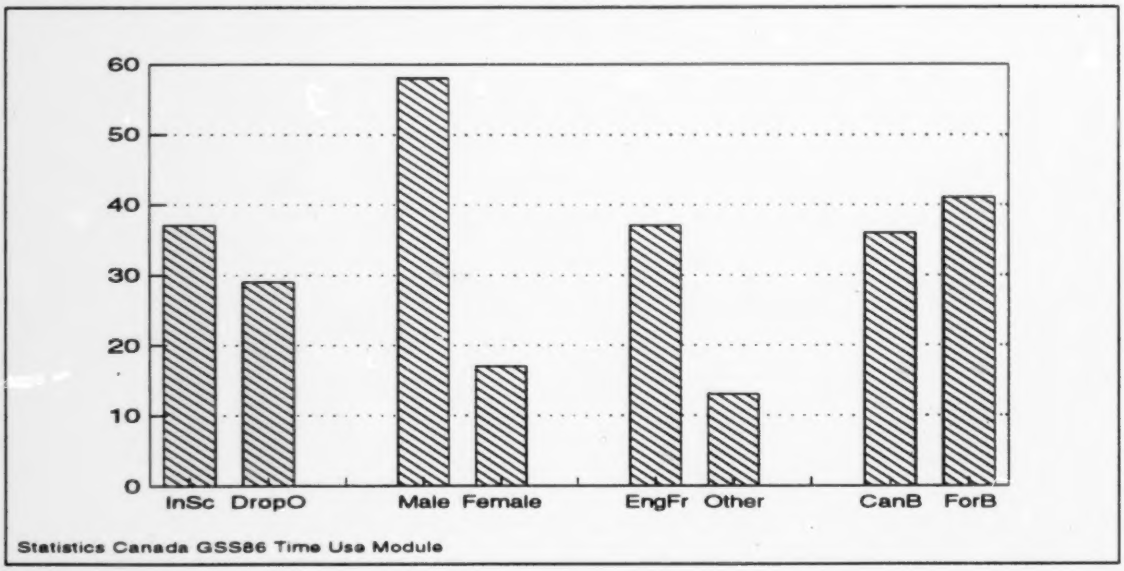

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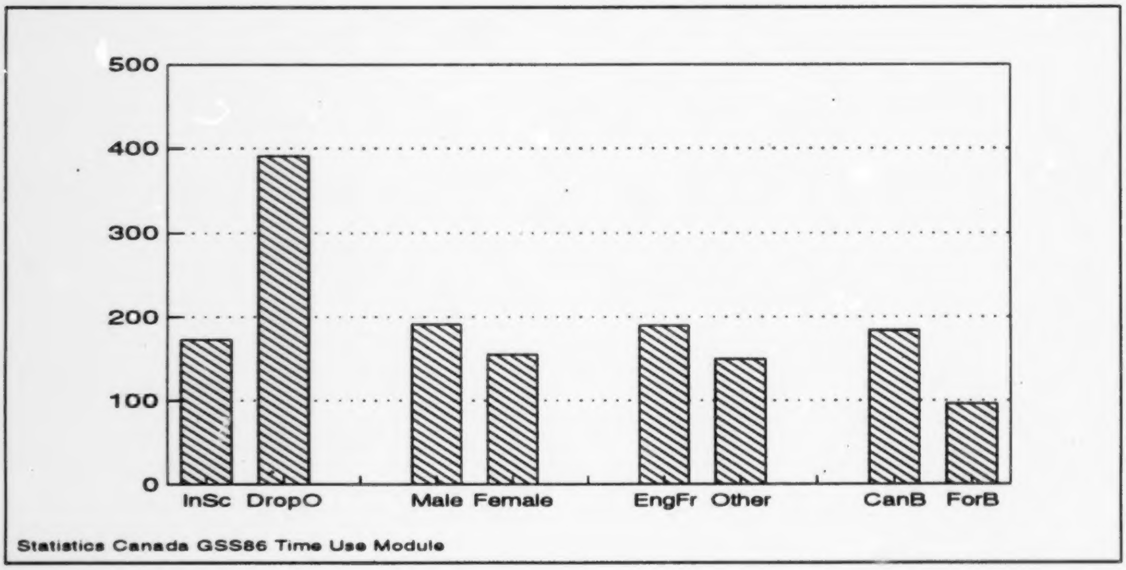
Figure 22 Minutes per Day in Media/Communication



Statistics Canada GSS86 Time Use Module

Profile of Young Adults Based on GSS Data (1989)

The Data

Statistics Canada has been carrying out national surveys under the title of General Social Surveys (GSS), since 1985. These surveys follow a five-year cycle, i.e. the same survey is repeated at five year intervals. The five topics covered (by year) are: Health (1985), Time use, social mobility (1986), Personal risk (1988), Education and work (1989) and Family and friends (1990). The Health survey was then repeated in 1991 and the Time use survey in 1992.

The data used in this section of the report come from Public Use Microdata files available at York University, based on the *1989 National Survey of Education and Work*. The survey was addressed to persons aged 15 years and over in 1989. A total of 9,338 persons were interviewed and represented the approximate 20,248,000 persons aged 15 years and over. A weight variable in the data permits us to get approximate whole numbers. However, caution should be taken when considering sub-groups, since each respondent in the survey represents 2,168 persons.

The information on age was pre-coded and we are able to use only the category 15-19 (not 15-18). However, questions within the survey allow us to identify those in this age-group who had already graduated from high school (21.4% of all in the 15-19 category), those who were still in high school (73.1%) and those who were no longer in school, but had not graduated (5.6%). This section of the report focuses on the Young Adult Learners who are still in high school and the dropouts (no longer in high school, but who have not graduated). It compares these two groups, for 14-19 year olds in Ontario, with those in the rest of Canada. We also give information for the total population of Ontario.

The profile based on GSS data covers courses taken in high school, interest in science and technology, academic future, finances, interest in wider societal issues, opinions on government spending, personal involvement in associations and satisfaction with life in general and with various aspects of life.

We are not able to identify from these data all of the sub-groups covered by the Census data. We do however, have a better comparison of the in-school and dropout populations. We are able to give information on sub-groups in-school in Ontario, by gender, mother tongue and immigrant status.

Approximate Numbers

15-19 YEAR OLDS (YOUNG ADULTS)

	TOTAL	IN SCHOOL	DROPOUT
ONTARIO	536,128	498,157	37,971
REST OF CANADA	776,703	680,824	95,879

TOTAL POPULATION OF ONTARIO (15 years +): 7,469,184

15-19 YEAR OLDS IN SCHOOL IN ONTARIO

SEX		MOTHER TONGUE		IMMIGRATION STATUS	
Male	Female	English/French	Other	Canadian	Foreign Born
257,477	240,680	417,729	80,427	417,312	80,845

The Young Adult Profile

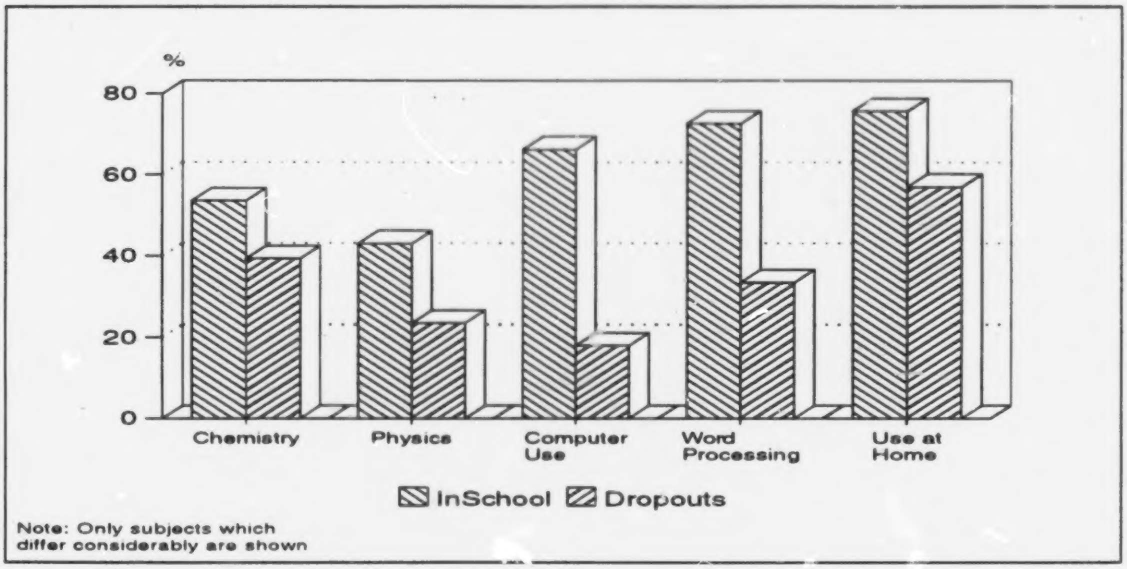
1. Comparisons

Courses Taken

Almost all persons took mathematics courses in high school (Table 17). Similarly, geography courses were taken by large proportions in each group, but to a lesser extent by dropouts in Ontario, and by groups in the rest of Canada than by those in school in Ontario, and by the total population of Ontario. Considerably lower proportions of all groups took chemistry and physics courses, and here the contrast between those in high school and dropouts was stronger. For instance, among students in Ontario and in the rest of Canada, 53.7 and 54.2 per cent respectively had taken chemistry and 43.1 and 44.6 per cent had taken physics. The proportions taking physics and chemistry for dropouts in Ontario were, 39.4 and 24.1 per cent respectively and for dropouts in the rest of Canada, 23.5 and 12.9 per cent.

The total population of Ontario and the two dropout groups was much less likely to have taken computer courses than those in school, respective proportions being, 34.5, 18.0 and 25.4 per cent for the former, and 66 per cent each, for the latter. In contrast, the total population of Ontario was just as likely to have taken courses in word processing as the two in-school groups (around 70% each), while this was true for only 33.6 per cent of dropouts in Ontario and 42.5 per cent of dropouts elsewhere. None of the Ontario dropouts and only 10 per cent of dropouts in the rest of Canada had completed courses in computer record keeping compared to 50 per cent of both students and the general population of Ontario and half of those in school in Ontario, and 33 per cent of students in the rest of Canada. Even fewer had taken computer data analysis: none of the dropouts in Ontario, less than ten per cent of dropouts in the rest of Canada, and approximately 20 per cent

Figure 23 In School & Dropouts: Courses Taken



Note: Only subjects which differ considerably are shown

each of the in-school groups, compared to 33 per cent of the total population of Ontario. Younger people were, however, more likely to have done computer programming: half each of the two in-school groups, around 4 in 10 dropouts in the rest of Canada, but none in Ontario and only 3 in 10 of the total population of Ontario.

While only a fifth of all Ontario respondents and one in eight of dropouts in the rest of Canada had a computer in the home, over a third of the three other groups had one. About half of the two dropout groups used the computer they had in the home, compared to two-thirds of all Ontarians and three-quarters or more of the two in-school groups. The overwhelming majority of the two in-school groups, were full-time students.

Both in-school groups revealed as much interest in Science and Technology programmes on television, radio and in newspapers and magazines as did the total population of Ontario. But for the two dropout groups, the interest was always lower; sometimes as much as 30 per cent lower.

Academic future

When considering the academic future of the two in-school groups, slightly higher proportions of those in the rest of Canada expected to complete high school before 1991. But the in-school groups were slightly more likely to plan to pursue higher studies; respective proportions being 86.4 and 81.1 per cent.

When asked if they planned to do more studies in the next five years, proportions were very high (about 9 in 10) for the two in-school groups and also for dropouts in Ontario. In contrast, only two-thirds of dropouts in the rest of Canada, had such plans. The main reason offered for wanting to continue their education in the next five years, was "career preparation," for the two in-school groups while dropouts added "improve career and other (unspecified) reasons."

In Ontario, while *all* dropouts only listed "secondary" as an *eventual degree*, 96.5 per cent of those in school were planning to go higher. It is important to note that those people who did not plan to continue studying after completing secondary education had already dropped out of the system. Almost all who were still in school planned to do post-secondary studies. Only 45.3 per cent of dropouts in the rest of Canada said that they expected their eventual degree to be secondary. Over one in ten of the in-school groups were aiming for an MA or Ph.D and half of those in Ontario compared to just over a third in the rest of Canada were aiming for a BA.

Finances

All dropouts in Ontario received *income* from wages in 1988, but little from other sources. One third of dropouts in the rest of Canada received income from government and 7 in 10 from wages. Among those in school in Ontario, 71.3 per cent received income from wages, but few from any other source. For all Ontarians, 75 per cent received income from wages, 44.5 per cent from government and 32.8 per cent from investment. Among those in school in the rest of Canada, 60.7 per cent received income from wages and 13.5 per cent from government sources.

The median personal income was $1,242 and $540 for the two in-school groups, and $6,205 for dropouts in the rest of Canada. (This information was not available for dropouts in Ontario.) It should be noted that the information on family income from this survey was not usable since around 70 per cent of young adults in Ontario and elsewhere did not know what their family income was.

Interests

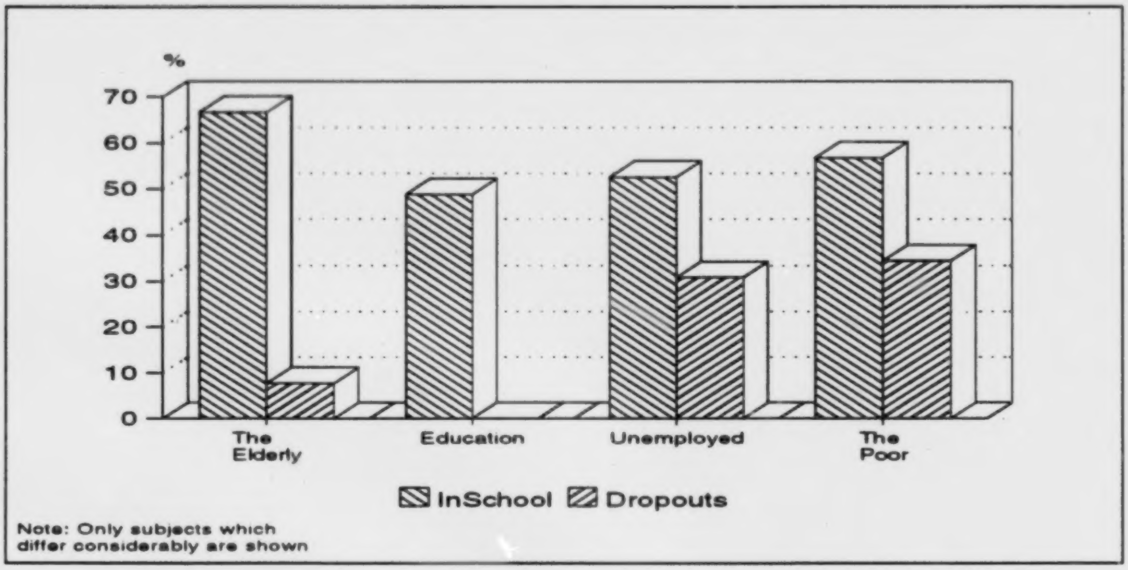
Just over half of the total population of Ontario was very interested in current affairs and one third each was very interested in economic conditions, new inventions and recent scientific discoveries (Table 18). While approximately 50 per cent of students in the rest of Canada were very interested in these last two areas, only about a third of students attending school in Ontario, less than a fifth of dropouts in Ontario and even fewer dropouts in the rest of Canada indicated interest. Approximately three in ten students in Ontario were very interested in current affairs, but only about one-fifth or less of the three other youth groups showed similar interests. Fewer than one in six youth groups were very interested in economic conditions.

Few people were very well informed about the above areas. For the total population of Ontario, under three in ten were very well-informed about current affairs, one in five about economic conditions, one in six about new inventions and one in eight about recent scientific discoveries. While only 25 per cent or fewer of students in Ontario were well informed in any of these areas, they were generally better informed than Ontario dropouts; no dropouts perceived themselves as being well informed in current affairs or economic conditions.

Opinions

Respondents were asked for their opinions on government expenditures in a variety of areas. In most groups, 6 in 10 or more felt that too little was spent on health care, with the exception of dropouts in the rest of Canada where fewer than half felt this way. Only 7.7 per cent of dropouts in Ontario and just over 50 per cent of dropouts in the rest of Canada felt that the government spent too little

Figure 24 In School & Dropouts: "Gov't Spending Too Low On..."

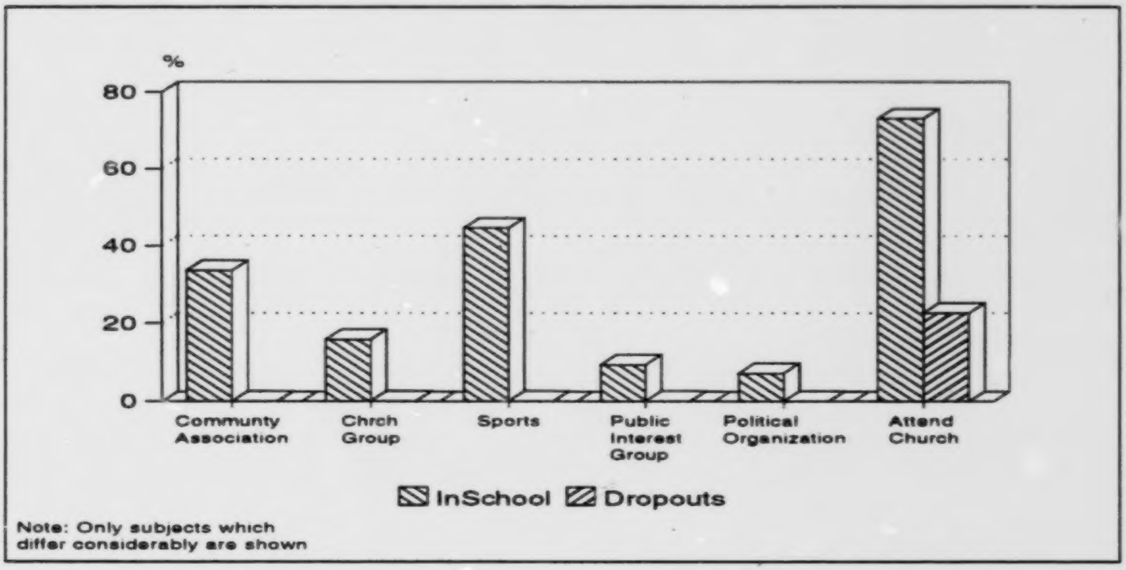


on the elderly, but the proportion was about 66 per cent in other groups. It is interesting to note that not a single Ontario dropout felt that the government spent too little on education, compared to all other groups where about 50 per cent felt that way. Three-quarters of the total population of Ontario felt that too little was spent on the unemployed, compared to 50 per cent of those attending school in Ontario, and only thirty per cent of Ontario dropouts. This attitude was not shared by dropouts in the rest of Canada, where the proportion was close to six in ten. Only four in ten or fewer felt that government spending on scientific research was too low, the proportion being as low as 14.6 per cent for dropouts in the rest of Canada. The two dropout groups differed quite strongly in their opinions on whether too little was spent on low income people; 66 per cent of dropouts in the rest of Canada compared to only 33 per cent of Ontario dropouts felt that too little was spent on low income people. The two groups in school shared almost identical opinions, around 56 per cent; while just under 50 per cent of all Ontarians felt that way. There appeared to be overwhelming agreement among all groups that government spent too little on reducing pollution. Three-quarters of dropouts in Ontario and over 80 per cent of all other groups felt this way.

Involvement

Involvement in any type of association was generally low for the two in-school groups, with the exception of sports, where 44.7 per cent of students in Ontario and 52.3 per cent in the rest of Canada were involved. Just over one-sixth of dropouts in Ontario were involved in charitable associations or volunteer work but they were not involved in anything else, not even in sports. The number of dropouts in the rest of Canada who were involved in various activities and associations was also low; the highest proportion was involved in sports (16.1%). The two in-school groups participated mainly in community activities and school associations (33% in Ontario and 39.2% elsewhere), church groups (one in six and just under a quarter). One in six students in the rest of

Figure 25 In School & Dropouts: Involved In...



Note: Only subjects which differ considerably are shown

Canada were also involved in cultural or ethnic groups, compared to less than five per cent of students in Ontario. The two groups in the rest of Canada tended to spend the most hours on these activities; the median hours per month were 30.3 for dropouts and 15.2 for those in school. The median for the two Ontario youth groups was about 12, while the rest of the population of Ontario spent 10 hours on these activities. Just under thirty per cent of dropouts in Ontario belonged to a labour union, compared to 11.1 per cent of dropouts in the rest of Canada and 16.6 per cent of all persons in Ontario. Naturally, few of the in-school groups belonged.

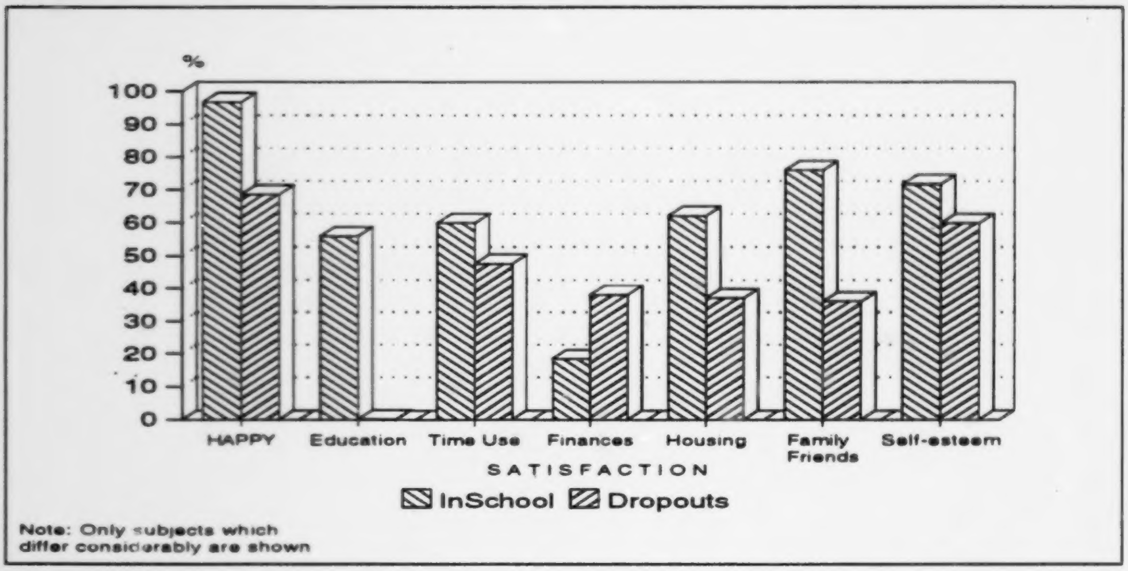
While a large majority of respondents declared having a religion, youth in Ontario rated the lowest (72.4% for students and 72.4% of dropouts.) Over 91 per cent of dropouts in the rest of Canada declared a religion, compared to 82 per cent of students in the rest of Canada and 84 per cent for the total population of Ontario. But dropouts were least likely to attend services. Only 50 per cent of dropouts in the rest of Canada and 22.7 per cent of dropouts in Ontario attended services at least a few times a year compared to 70 per cent or more of the other groups.

Satisfaction

A very high proportion of respondents (over 90%) declared themselves to be somewhat or very happy, except for dropouts in Ontario, where the proportion was 68.7 per cent.

Most youth groups tended to be strongly satisfied with their health (over 70%) except for dropouts in the rest of Canada (55.3%). None of the Ontario dropouts and only 3.5 per cent of dropouts in the rest of Canada were strongly satisfied with their education. This contrasts sharply with students in Ontario and the rest of Canada, where over 50 per cent expressed strong satisfaction with their education. Half or more of all but dropouts in the rest of Canada (38.9%) were strongly satisfied with their job. They were also the least satisfied with the way they spent their time. Few were strongly satisfied with their finances; Ontario dropouts had the highest proportion, 38.3 per cent who

Figure 26 In School & Dropouts: Happiness & Satisfaction with...



Note: Only subjects which differ considerably are shown

were strongly satisfied, followed by the total population of Ontario with 27.6 per cent and around one-fifth or less for the other groups. Dropouts in Ontario, however were the least satisfied with their housing, only 37.3 being strongly satisfied. Among other youth groups two-thirds or more were satisfied, while 53.4 per cent of Ontarians were satisfied. Most (6 in 10 or more) were strongly satisfied with their marital status i.e. their spouse, partner or single status. Three-quarters or more were strongly satisfied with their relationship with friends and family except for dropouts in Ontario (36.2%). Less than half of dropouts in the rest of Canada and six in ten dropouts in Ontario were strongly satisfied with their self-esteem. Proportions in the other groups were two-thirds or more. Youth in school in Ontario had the highest proportion who were strongly satisfied with life as a whole (71.6%). They were followed by Ontario dropouts (64.5%), those in school in the rest of Canada (63.2%), the total population of Ontario (60.9%) and dropouts in the rest of Canada (44.4%).

2. Profile of the In-School Young Adult in Ontario 1989

Based on the 1989 GSS data, the following profile of young adults in Ontario who attended school emerges:

- Almost all have taken courses in mathematics and geography.
- Over half have taken chemistry courses and just over four in ten, physics courses.
- Two-thirds have had courses on use of computers, double the proportion of the total Ontario population.
- Just under four in ten have access to a computer in the home and three-quarters of these used it.
- Over half have taken courses in computer programming and over seven in ten, word processing courses.

- Almost all watched TV programmes on science and technology and over seven in ten read articles on the subject.
- As many as 86.4 per cent planned further education after high school.
- Over nine in ten stated that they would be pursuing more education in the five years following the survey and nearly all of these planned to do so to prepare for their careers.
- A tenth eventually hoped to get an MA or PhD and a further half, a BA. Only 3.5 per cent mentioned that they would be satisfied with a high school diploma or less.
- Over seven in ten received income from wages. Their median personal income was $1,242.
- Less than four in ten were interested in new inventions and even fewer in recent scientific discoveries (one-third), current affairs (three in ten) and economic conditions (one-sixth).
- Only a quarter felt that they were well-informed about current affairs, one in six about new scientific discoveries or new inventions, and one in thirteen about economic conditions.
- They were most concerned about government spending on reducing pollution.
- Other areas of concern included government spending on health care and the elderly: two-thirds thought government spending was too low in this area.
- Their major area of involvement was in sports: 44.7 per cent.
- One third were involved in community/school associations, and one-sixth each in charitable/volunteer work and church groups. Median number of hours per month spent on such activity was 12.5 hours.
- Just under three-quarters declared having a religion and three-quarters of these attended services at least a few times a year.
- An overwhelming 96.8 per cent said that they were somewhat or very happy.
- They were most satisfied with their marital status (spouse, partner or single status); 81.5 per cent being strongly satisfied.
- They were least satisfied with their finances (only 18.5% were strongly satisfied). Less than half were strongly satisfied with their job.
- Only 56.1 per cent were strongly satisfied with their education, but this proportion was 20 per cent higher than that of all Ontarians.

3. Profile of the Dropout Young Adult in Ontario 1989

Based on the GSS data the following can be added to the profile of young adult dropouts (whose profile from the Census data differed little from the norm) in Ontario:

- ALL had taken courses in mathematics and over 8 in 10, courses in geography.
- Less than four in ten had taken chemistry and less than a quarter, physics.
- Less than one in five had taken courses in use of computers, a proportion which is only half as large as that of the entire Ontario population.
- The proportion who had a computer in the home was similar to those in school in Ontario, but under six in ten of these used the computer.
- NONE had taken courses on record keeping, data analysis or programming and only four in ten had taken courses in word processing.

- Two-thirds watched TV programmes on science and technology but fewer than six in ten read about the topic.
- Interestingly, 91.6 per cent planned further education in the 5 years following the survey, most giving 'other' reasons for doing so.
- However, ALL dropouts were only interested in obtaining an elementary or high school diploma.
- ALL received income from wages, but from no other source.
- Only a fifth were very interested in current affairs, and even fewer in economic conditions, new inventions or recent scientific discoveries.
- None were very well informed about current affairs or economic conditions and under a fifth about other areas.
- None felt that government spending on education was too low.
- Three-quarters felt that government spending was too low on reduction of pollution; six in ten on health care; but a third or fewer felt it was too low in other areas.
- Ontario dropouts were not involved. Only 17.5 per cent mentioned involvement in charitable/volunteer work, but nothing else.
- However, over a quarter were union members.
- While seven in ten declared having a religion, less than a quarter attended services at least a few times a year.
- Only two-thirds (compared to over 90% among others) considered themselves to be somewhat or very happy.
- NONE were strongly satisfied with their education.
- They were the most satisfied of all the groups with their finances (38.3%).
- However, they were less satisfied with housing than any other group, by 20 per cent.
- Only 36.2 per cent of Ontario dropouts were strongly satisfied with their relationship with family and friends, compared to 70 per cent of the other groups.
- Six in ten were strongly satisfied with their self-esteem. This was the lowest proportion for Ontario, but less than half of dropouts in the rest of Canada expressed satisfaction.
- Two-thirds were strongly satisfied with life as a whole.

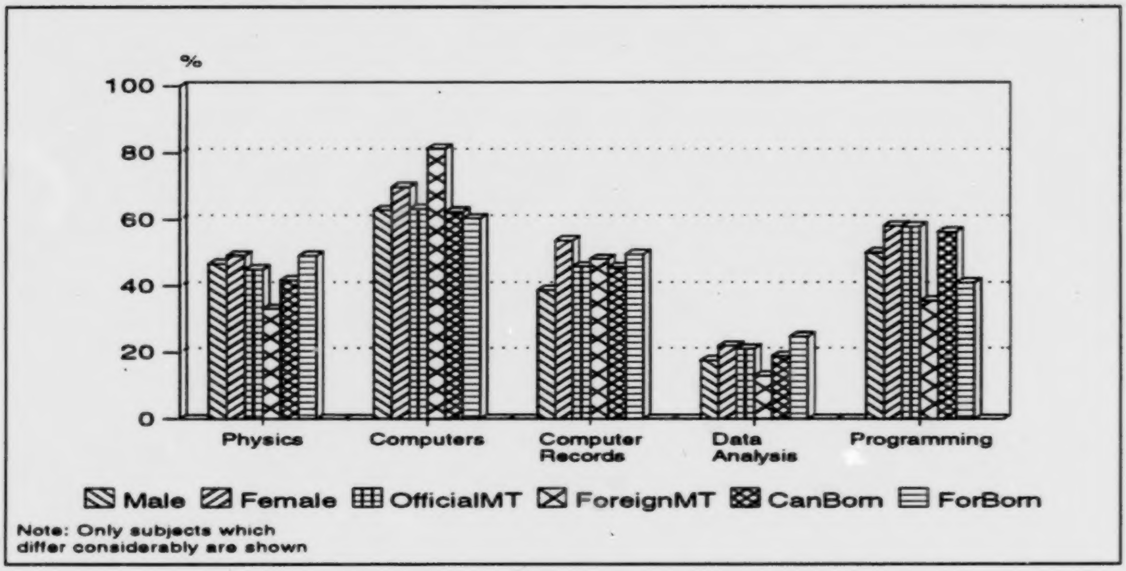
4. Sub-Group Analysis

Table 19 and Table 20 consider the total Ontario in-school young adult population, with sub-groups based on gender, mother-tongue and immigrant status.

Courses Taken

There were slight differences by sex when considering most courses taken. Males were more likely than females to have taken geography, physics and word processing, and were also more likely to be using a home computer. However, females were more likely to have taken courses on computer use and computer programming. They were much more likely than males (53.9% vs. 38.9%) to have had courses on computer record-keeping. There were strong contrasts by mother-tongue. Just under a fifth more students with non-official mother tongues had taken courses on computer use, 81.4 compared to 63.4 per cent of students whose mother tongue was English or French. But the former

Figure 27 Subgroups: Courses Taken



were 12 per cent less likely to have taken physics, 8.2 per cent less likely to have taken courses on computer data analysis, 22.4 per cent less likely to have taken courses on computer programming and 15.8 per cent less likely to have had access to a computer in the home. However, when they did have a computer in the home they were just as likely to use it as those of English and French mother tongue. While just under half of the foreign-born students had taken physics courses, this was 41.9 per cent for Canadian-born students. The former were also more likely to have had word processing courses (83.1% vs. 70.9%) and computer data analysis courses (24.7% vs. 18.9%), but 15.3 per cent fewer had completed computer programming courses. Only 12.0 per cent had access to a computer in the home, compared to 43.5 per cent for the Canadian-born students. Even when foreign-born students had a computer in the home, they were 29.1 per cent less likely than the Canadian-born students to use it.

Females were more likely than males to listen to programmes on science and technology on radio and to read magazines on the subject. Those with non-official mother tongues were more likely to watch science and technology programmes on TV, but significantly less likely to listen to these on the radio. There was little difference in media used by birthplace.

Academic future

When comparing the sexes, females expected to complete their secondary education considerably earlier than males (36.6% vs. 18.8% in 1989). Significantly fewer females (4.6%) than males (11.6%) planned to work upon graduation. However 10 per cent more females than males planned to further their education, mainly to prepare for a career. But while 15.7 per cent of males hoped to eventually get an MA or Ph D, this was only 5.7 per cent for females. Well over half (55.9%) of females planned to get a BA. While just under a tenth of males planned to get only a high school diploma, *all* females planned to do further study. Just under 30 per cent of those with English/French mother-tongues were about to complete their education in 1989, compared to 16.8 per cent of those with non-official mother tongues; three in ten of this group would only be completing their studies after 1991. While 7.1 per cent of students with English/French mother tongues planned to work rather than do further study, this was 14 per cent for the others. The latter group was more likely to want to get an MA or Ph D and *all* of them planned to continue their education after high school. In comparing Canadian and foreign-born students, none of the foreign-born students planned to work after high school, compared to 10 per cent of the Canadian born students. *All* foreign-born students planned to further their education in the next five years, compared to 88 per cent of Canadian born students, and **all** stated that they wanted to improve their careers. They were also slightly more likely to aim for the MA or Ph D, and *all* planned to study further, after high school.

Finances

More than 76 per cent of males and 66 per cent of females had received income from wages. English/French mother tongues and Canadian-born students were 10 per cent more likely to receive income from wages than foreign born or non-official language students. None of the non-official language group or foreign-born group received income from government or from investment. The data on 'personal income' appeared too unreliable to use here, and as we mentioned earlier, over 70 per cent in this age-group did not know what their family income was.

Interests

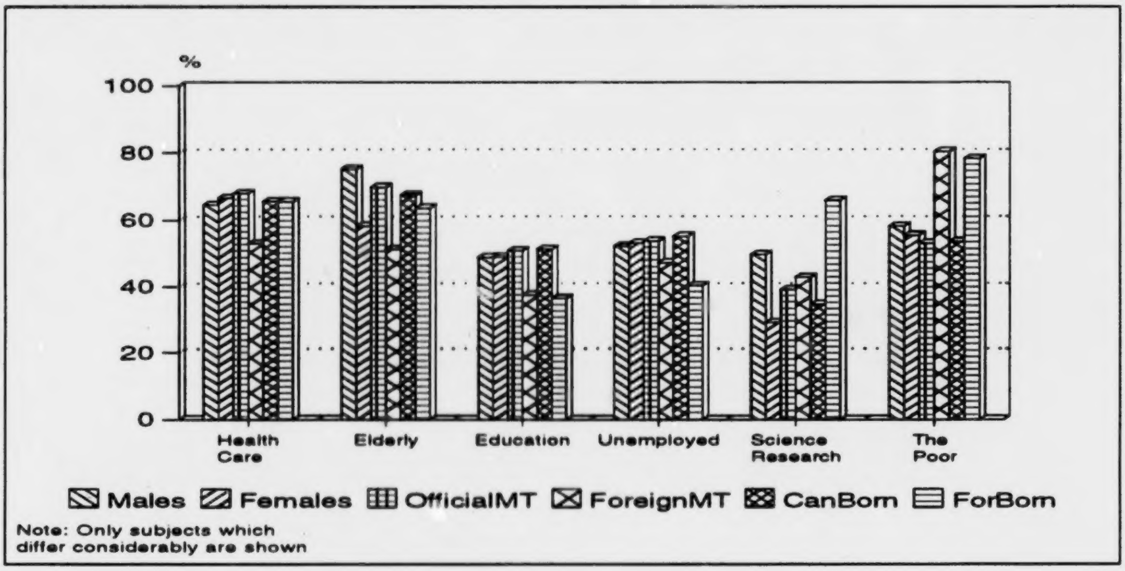
Considerable differences by sex was noted when comparing interests. While 6.6 per cent more females were interested in current affairs, male interest in areas such as: economic conditions, new inventions and recent scientific discoveries, was, respectively, 9.7, 19.2 and 18.4 per cent higher. While just under a third of English/French mother-tongue groups were very interested in current affairs, only 21.7 per cent of the 'other' group was interested. The latter were more interested in the three other areas: economic conditions (14.6% more), new inventions (15.3% more) and recent scientific discoveries (14.6% more). Foreign-born students were more interested than Canadian-born students in all the above mentioned four areas.

Comparing the sexes, males were more than 10 per cent more informed than females on current affairs, new inventions and recent scientific discoveries. Non-official mother tongue groups were more than 6 per cent more informed than English/French mother tongue groups about economic conditions and new inventions, and more than 21 per cent more informed about recent scientific discoveries. While 11.2 per cent of Canadian-born students were better informed about current affairs than their foreign-born counterparts, foreign-born students were more informed in the three other areas; and as much as 15.4 per cent more in the area of recent scientific discoveries.

Opinions

The two sexes shared opinions in most areas, but more males than females felt that government spending on the elderly and on scientific research was too low. As many as 80 per cent of those with non-official mother tongues felt government spending was too low on the poor, compared to only 53.2 per cent of those with English/French mother tongues. The latter, however, were 13 per cent more likely to state that government spent too little on health care, the elderly, education and the unemployed. Foreign-born students were considerably more likely (24% or more difference) to believe that government spent too little on scientific research and the poor, but around 15 per cent less likely to state that government spent too little on education and the unemployed.

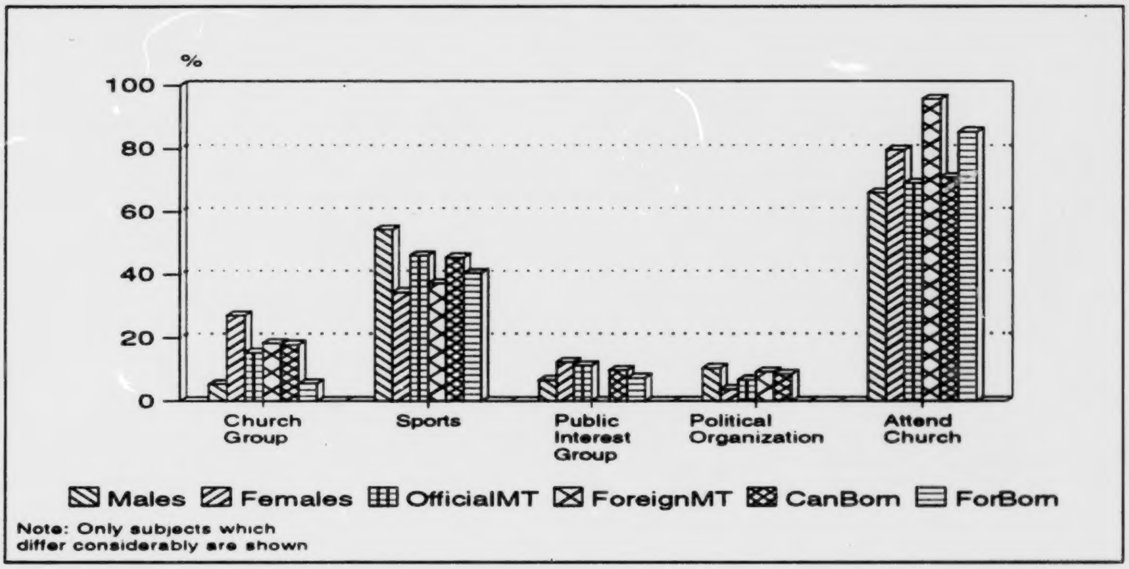
Figure 28 Subgroups: "Gov't Spending Too Low On..."



Involvement

When comparing the sexes, 20 per cent more males participated in sports than females, but females were 20 per cent more likely to belong to a church group. Over 5 per cent more females than males were involved in community/school associations and public interest groups. But while 5 per cent of males belonged to a union, none of the females belonged; moreover, 6.7 per cent more males than females were involved in political organizations. Over 10 per cent more females declared having a religion, and among those who did, over 13 per cent more females attended services at least a few times per year. There were only very slight differences by mother tongue. While 11.3 per cent of students with an official mother tongue (English/French) were involved in a public interest group and 3.1 per cent belonged to a union, there were no students of 'other' mother tongue origin involved. Also, 9 per cent more of the former were involved in sports. Three-quarters of official-language students declared having a religion, compared to two-thirds of the non-official language group. But 95.8 per cent of non-official language students who declared a religion attended services, compared to 69.3 per cent for the official language group. Over 12 per cent more Canadian-born students were involved in a church group, while 8.6 and 3.1 per cent were involved in a political organization or a union. None of the foreign-born students belonged to these. While 11.4 per cent more Canadian-born than foreign-born students declared having a religion, 14.3 per cent more of foreign-born students attended services at least a few times per year.

Figure 29 Subgroups: Involved In...

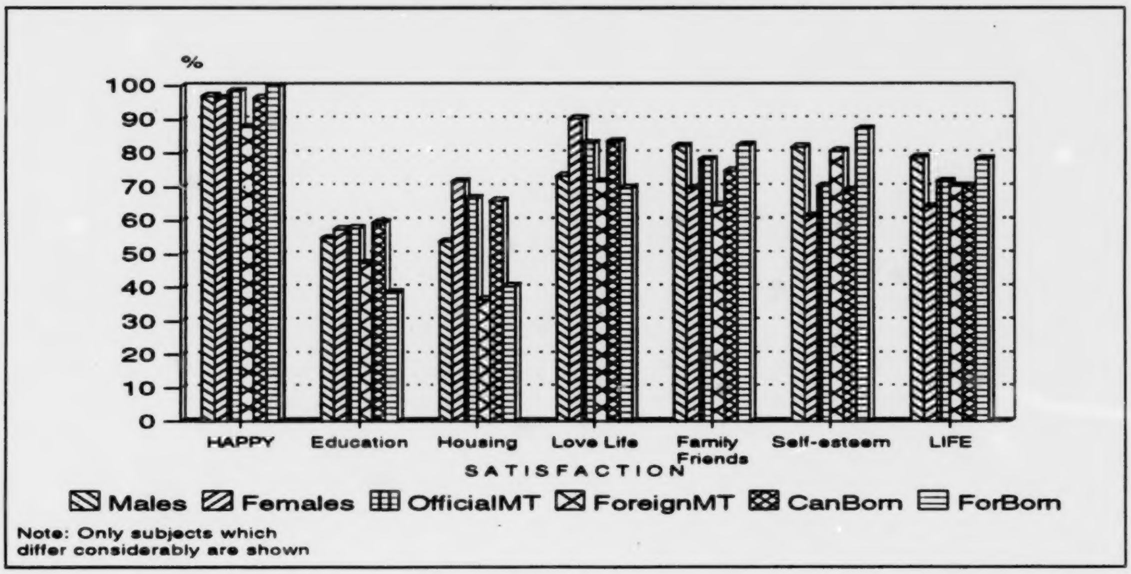


Note: Only subjects which differ considerably are shown

Satisfaction

There were no strong differences between sub-groups when asked if they were somewhat or very happy; the proportions were very high, including 100 per cent of the foreign-born students. Females were over a sixth more strongly satisfied with housing and their marital status (married, partner, single) than males. But they were 12.5 per cent less strongly satisfied with relationships, friends and

Figure 30 Subgroups: Happiness & Satisfaction with...



Note: Only subjects which differ considerably are shown family; 20.4 per cent less satisfied with their self-esteem and 14.6 per cent less satisfied with life in general. While 80 per cent of the non-official mother tongue group, compared to 70 per cent of the official mother tongue group, were strongly satisfied with their self-esteem, in many other areas they were significantly less satisfied. Their level of satisfaction with their health, education, spending of their time, marital status and relationship with family and friends, ranged from 8 to 10 per cent below that of the official mother tongue group. They were also less likely to feel satisfied with housing (30.2%) and with their jobs (18.9%). Compared to their foreign born counterparts, Canadian-born students were twice as likely to be strongly satisfied with their jobs; 26 per cent with housing; 21 per cent with their education; and 13.8 per cent with their marital status. In contrast, foreign-born students were 17.5 per cent more likely to be strongly satisfied with their self-esteem, 9.3 per cent with their finances, 8.4 per cent with life as a whole and 7.6 per cent with their relationship with family and friends.

5. Profile of the Female Young Adult in Ontario 1989

Based on the GSS data, we can add the following to the profile of young adult females (whose profile from Census data differed little from the norm) in Ontario:

- All females had taken courses in mathematics and almost all in geography.
- Just over half had taken chemistry and over four in ten, physics.
- Seven in ten had taken courses in computer use and the same proportion in word processing.
- While only one in five had done data analysis on a computer, over half had done computer record-keeping and just under 6 in 10, computer programming.
- Just under 4 in 10 had a computer in the home and over 7 in 10 used it.
- Almost all watched TV programmes on Science and Technology, half listened to these on the radio and over 7 in 10 read about them in newspapers and magazines.
- Over 6 in 10 expected to complete high school within a year of the survey (i.e. by 1990).
- Less than 1 in 20 planned to work after completing high school.
- Over 9 in 10 stated that they would continue their education in the five following years, mainly to prepare their career.
- Just over 5 per cent hoped to obtain an MA or PhD but 55.9 per cent planned to get a BA.
- In contrast to males (8.8%) *no females* considered high school to be their eventual degree.
- Two-thirds received income from wages, 1 in 20 received income from government and from investments.
- A third were very interested in current affairs and a quarter each in new inventions, and recent scientific discoveries; only one-tenth were interested in economic conditions.
- Under a fifth were well informed about current affairs; 1 in 8 in recent scientific discoveries; only 1 in 10 in new inventions; and even fewer in economic conditions.
- Females were most concerned about lack of government spending in reducing pollution (82%) and health care (66.6%).
- They were least likely (29.1%) to consider government spending to be too low on scientific research.

- Females were most likely to be involved in a community, school association (36.7%) and a church group (27.1%). They spent a median 13.7 hours per month on these groups.
- No females belonged to a union.
- Eight in ten declared having a religion and among these, 8 in 10 attended services at least a few times a year.
- While declaring themselves generally happy (96.4% somewhat and very happy) there were areas in which they were considerably less satisfied than other groups.
- They were least strongly satisfied with their finances (17.5%), job (47.8%) and how they spent their time (48.3%).
- They were most satisfied with their marital status (90.3%), housing (71.7%) and relationships with family and friends (69.7%).

6. Profile of the Non-Official Mother Tongue Youth Group in Ontario

Based on the GSS data we can add the following to the profile of the young adult non-official mother tongue group:

- All had taken mathematics and geography courses.
- Just under 6 in 10 had taken chemistry, but only under a third had taken physics.
- Over 8 in 10 had taken courses on computer use.
- Just under three-quarters had taken courses in word processing and half in computer record keeping, but only a third in computer programming and 1 in 8 in data analysis.
- Only a quarter had access to a computer in the home, but three quarters of them used it.
- While 9 in 10 watched programmes on science and technology on TV, just over a quarter listened to them on radio; well over 7 in 10 read about them in newspapers and magazines.
- This group took the longest time to complete high school; 3 in 10 planned to do so after 1991.
- A comparatively high proportion (14%) planned to work after completing high school.
- But *all* planned to further their education in the five years following the survey (most, no doubt to complete high school), mainly to prepare for their careers.
- A relatively high proportion (13.6%) planned to get an MA or PhD and 46 per cent, a BA.
- *None* stated that they would be satisfied with only a high school diploma, which seems to contradict the fact that 14 per cent planned to work after completing high school. It could mean that they planned to work before going back to their studies.
- Just over 6 in 10 received income from wages, but from no other source.
- As many as half were interested in new inventions, and close to that proportion, in recent scientific discovery.
- Over a third also felt that they were well informed about recent scientific discoveries, but a fifth or fewer were well informed in other areas.
- Over 8 in 10 felt that government spent too little on reducing pollution and on the poor.
- But under 4 in 10 felt government spent too little on education.

- Just under 4 in 10 were involved in sports; just over a third in a community or school association; while under a fifth with a church group.
- There was little involvement elsewhere and **none** belonged to a union.
- Only two-thirds declared having a religion, but nearly all of these (95.8%) attended services at least a few times a year.
- This group had the lowest proportion (87.9%) who were somewhat or very happy.
- Finances were their greatest source of dissatisfaction, followed by their job.
- Over 8 in 10 were strongly satisfied with their self-esteem, 7 in 10 with life as a whole and a similar proportion with their marital status.

7. Profile of the Foreign-Born Youth Group in Ontario

Based on the GSS data we can add the following to the profile of the young adult foreign-born group:

- All had taken mathematics courses and almost all, geography.
- Under 6 in 10 had taken chemistry and under half, physics.
- This was the group where fewest had taken computer courses, but over 8 in 10 had done word processing.
- Under half had taken record keeping, 4 in 10 had done computer programming and a quarter, data analysis.
- Only 12 per cent had a computer in the home and less than half of them used it.
- All watched science and technology TV programmes, and three-quarters read about them, but under half listened to them on radio.
- Just under 3 in 10 expected to complete high school in 1989 and **all** planned further education.
- *All* planned to further their education in the five years following the survey to prepare for their careers.
- One in eight planned to get an MA or PhD and 4 in 10 a BA.
- *None* expected high school to be their eventual degree.
- Just over 6 in 10 received income from wages, but from no other source.
- Two in three were interested in new inventions and just under half in recent scientific discovery.
- Less than a fifth were well informed about new inventions, while 3 in 10 were well informed about recent scientific discovery.
- Just under 8 in 10 felt government spent too little on reducing pollution and the poor, but only 36.5 per cent felt government spent too little on education.
- Four in 10 were involved in sports, a third in community, school associations 1 in 8 in charitable, volunteer work, but less than a tenth in anything else and **none** belonged to a union. Only a median 6.7 hours per month was spent on these activities.
- **All** were somewhat or very happy.
- Highest sources of satisfaction (around 80%) were their self-esteem, relationships with family and friends and life as a whole.
- Only about a quarter each were strongly satisfied with their finances and job.

Profile of Young Adults Based on Addiction Research Foundation Data

The Data

Every two years, the Addiction Research Foundation (ARF) carries out studies in Ontario schools, focusing mainly on questions related to use of tobacco, beer and alcohol, and a variety of drugs. The survey also includes a few background questions on school performance, how time is spent, and participation in activities. A number of questions refer to discussion of these topics in school, values held by respondents and factors related to their driving experience.

The present data comes from a 1989 survey of students in grades 7, 9, 11 and 13. Those in grades 8, 10 and 12 were studied in 1991. The analysis was limited to those aged 12-14 (transition years) and 15-18 (young adults) and excludes persons aged 19 and 20 who are still in school. We have to emphasize that no data is available here on dropouts. Data on dropouts is all the more pertinent, because we are dealing with smoking, drinking and the taking of drugs, all of which may be highly related to dropping out.

While the present data has the advantage of having been addressed directly to youth in schools, the data does not permit any detailed breakdown into sub-groups; we are only able to distinguish between the sexes.

While every attempt was made by interviewers to get truthful replies, readers may be sceptical as to the truth of the responses. All we can assert from the available data, is that at least these percentages of young people were taking these substances. The actual proportions may well be higher, particularly if the survey had been able to somehow get to those who had dropped out of the system.

APPROXIMATE NUMBERS

A weight variable allows us to estimate the actual populations, as follows:

	TOTAL	MALE	FEMALE
15-18 (Young Adults)	213,391	10,654	
12-14 (Transition Years)	217,248		

In the five tables referred to, the 12-14 year olds were compared to the 15-18 year olds. Males were then compared to females in this latter group.

The Young Adult Profile

1. Comparisons

Background

Table 21 shows that there were only slight differences between age groups and between sexes when considering language of interview, whether respondents lived with parents or not and median grades students usually received. Naturally, all in the younger age group were in grades 7 and 9, but as many as a quarter of the older age group were also in these grades, with only slight differences among the sexes.

Well over a tenth more of the older age group felt the pressure to get good grades, and females were slightly more likely than males to feel this pressure. While a third of the younger age group usually spent time out of school, at home reading or watching television, one-in-five of the older group spent this time in a part-time job. In both cases the second choice for time spent, was 'out with friends'. Here, females showed a slightly higher proportion than males.

The amount of money which respondents were allowed to spend as they wished per week, appeared quite high: $82 for the younger age-group, $139 for the older group, with males in the latter group having an average of $11 more than females. However, the standard deviations in all cases were very high, indicating that there was a good deal of variance in individual amounts. No doubt, the fact that many had part-time jobs (the data does not indicate how many had these jobs, but only how many spent most of their out-of-school time at these jobs) had a strong influence on the amount of money available.

There were relatively strong differences both between age groups and the sexes when rating physical health: 10 per cent more of the younger group felt that their health was excellent and 10 per cent more males than females in the higher age group felt this way.

When considering participation in a variety of areas, the highest proportion, 75 per cent or more, were involved in court sports (tennis, squash). Large differences in favour of the older age-group were found in track and field (10.6%) and body building (12.9%). In each area except 'other activities', males were more involved than females. This was partly due to the fact that some of the sports were male-dominated; for example, 45.2 per cent of males were involved in football compared to 13.9 per cent of females.

Use Of Various Substances

Questions relating to use of various substances in the twelve months preceding the interview, were asked. Both age and sex had a strong influence on the use of tobacco, alcohol and cannabis (Table 22). While a fifth of the older group used tobacco, only 8.4 per cent of the younger group did so. A slightly higher proportion of females than males used tobacco among the young adult groups. Four times as many students in the older age group drank alcohol, and here the male proportion was 10 per cent higher than for females. While 9.5 per cent of the older group had taken cannabis, only 1.4 per cent of the younger group had done so. But the difference between the sexes was only 2 per cent.

With regards to a variety of other drugs, use was extremely low, never equalling 3.5 per cent. In the older age group, female students in particular were more likely to take stimulants without prescription, and 3.4 per cent of older male students said they had taken LSD.

Tobacco

A quarter more of the 12-14 year old group had never smoked, but proportions between the sexes in the 15-18 year old group were almost identical; just over a fifth of each group felt that they had been pressured into smoking. Males were slightly more likely than females to try their first cigarette in grade 7 or earlier. Note that, although many stated that they did not smoke, they may have done so in the past. Hence, half of all groups tried their first smoke simply out of curiosity, 'to see what it was like'. When asked why they did not smoke, 10 per cent more of the younger group felt that 'it might be harmful to their health' and 9.1 per cent more felt that it was just 'stupid'. Twice as many of the older group had tried smoking once. There were no strong differences in these reasons, by sex.

Alcohol

Both age and sex influenced the amount of beer, wine or hard liquor taken (Table 23). Just under a third more of the younger age-group had never had any beer; 14.1 per cent more had never tasted wine and over a third more had not had any hard liquor. Nevertheless, the proportion of 12-14 year old students who had tried alcohol included: beer, 27.4 per cent; wine, 33.1 percent; and hard liquor, 23.3 per cent. Just under a fifth more males than females in the older age group had tried beer, a sixth of these having drunk more than 7 bottles at a time. Over a tenth more females, however, had drunk wine, the majority of these had limited themselves to 1-3 drinks per time. Similar proportions of males and females had tried hard liquor.

Over three-quarters of the 15-18 year old group felt that they had no difficulty in getting alcohol, compared with just under half of the 12-14 year old group, with no appreciable differences between the sexes. Just over a third of the younger group had never used alcohol compared to 11.7 per cent for both sexes in the older group. About 5 per cent more of the older age group felt that they were pressured into taking alcohol and males were slightly more likely than females to feel the pressure. Just under a tenth more males than females in the older age group, had taken a first drink in grade 7 or before.

One third who had taken a first drink, had done so out of curiosity and there were only slight differences by age or sex. The second most important reason for taking a first drink was 'a special event'. A quarter or more of males and females gave this reason, and among the younger respondents, this was 35.5 per cent. Two-thirds of those who did not drink had tried it once in the older age group, compared to one-third in the younger group. While one in five younger non-drinkers felt drinking might be harmful, this was only 7.4 per cent for the older age group.

Among drinkers, about 50 per cent of each group did not feel that parents thought they drank too much, but just as many said either that they did not know what their parents thought of their drinking or that their parents did not know about it.

In the month preceding the interview, 15.4 per cent of the older group compared to 4.3 of the younger group said alcohol had made them 'tight'. The proportions were 18.8 per cent for males and 11.8 per cent for females, in the older group. As many as 12.1 per cent of this latter group said they had been warned about drinking by police, compared to 3.8 per cent for the younger group. Just over 5 per cent more males than females had been warned. Over a tenth of younger drinkers wished they could drink less compared to 6 per cent of the older group.

Drugs

While 41.3 per cent of young adults felt that it was easy or very easy to get cannabis, this was 13.1 per cent of the younger group. (Table 24). While only 6.8 per cent of the younger group had ever used cannabis, 27.9 per cent of the older group had tried it, with no important differences by sex. Over 86 per cent of the younger group were never offered cannabis, compared with only 59 per cent for the older group, with little difference by sex. Females, however were much less likely than males, among the latter, to have first tried cannabis before grade seven.

While 6 in 10 of the older group who had tried cannabis, had done so out of curiosity, this was only 4 in 10 of the younger group. The latter were more likely to give a variety of 'other' reasons. Again the older group did not differ substantially by sex. The main reason given by those who had not tried it (around 30%) was that it was 'stupid'. Younger students were more likely than their older counterparts to think that it might be harmful and were less likely to have tried it once. In the older group, six per cent more males than females felt it might be harmful but 8 per cent more females felt that they did not need it, or were not interested. Over three-quarters of the younger group said that none of their friends used cannabis, compared to under half of the older group, with no differences by sex. One in six of the older group stated that more than half of their friends used cannabis. Over 4 in 10 of the older group felt that it was likely or very likely that they would use cannabis in the coming year, compared to just under a quarter of the younger group.

The younger group was much more likely to feel that 1) the police would catch them using pot (32.2% vs. 12.8%), 2) parents would find out if they used pot (61.6% vs. 31.1%) and 3) they would develop health problems if they used pot (73.4% vs. 50.9%). Older female students were 6.5 per cent and 10.1 per cent more likely than older male students to be concerned about parents and health problems.

When asked about the most serious consequence of using cannabis, 10 per cent more younger people feared being caught by the police and 9 per cent more feared for their health. There were no strong differences by sex.

Over a fifth of the older group felt it would be easy and very easy to get cocaine, compared to just under one-tenth of the younger group. There were no important differences by sex.

When asked about the use of substances to improve performance in sports, the older group were always more likely than the younger group to use these, and males were always more likely than females to use them. The most-used stimulant was caffeine.

Just under three-quarters of older female students had received an injection of a medical drug in the 12 months preceding interviews, compared to under half of older males. The figures were similar for younger people. The older group was more likely than the younger group to have had an injection of heroin (11.0% vs. 3.4%), cocaine (12.2% vs. 4.1%) and steroids (12.4% vs. 3.7%). In the older group, while 12.9 per cent of males had taken LSD, no females recorded this, 17.6 per cent of males had injected steroids compared to 2.1 per cent of females. The older group was more likely to share needles than the younger and here, females were considerably more likely than males to do so. The younger group was more than twice as likely than the older group to isolate 'fear of AIDS' as a reason to not share needles.

General Situation

There were no appreciable differences in the two age cohorts when asked about having classes on alcohol and cannabis use, but a higher proportion of the younger group mentioned having classes on tobacco use and an even higher proportion mentioned classes on the use of 'other drugs' (Table 25). The sexes didn't differ substantially in these areas.

When asked about their opinions and values, there were sometimes strong differences between the younger and older group and between males and females. Over 20 per cent more of the older group attempted to get into a movie without paying and just under 20 per cent more males than females tried this. Over a sixth more of the older group have 'played sick' to try to get out of doing something, but here sex differences were minor. Females were about 8 per cent less likely to admit to having hurt somebody deliberately. The proportion of older students who felt it was alright to get around the law if you could get away with it was twice as high as that of the younger group; and 13 per cent more males than females felt this way. Only 8.5 per cent of females compared to 16.1 per cent of older males would do anything as long as they stayed out of trouble, and here there were no strong differences in the age-groups.

Driving

Students who had never driven, with or without a licence, were told not to answer the questions related to driving. While 97 per cent of the younger age group had no drivers licence, only a quarter of the older group didn't have one. Among those who did have a licence, 1.5 per cent of the younger group and 18.2 per cent of the older group had a beginners licence. There were no differences by sex. In every group, at least some people had been in an accident after drinking, been convicted of driving while drinking and driven within an hour of drinking, even if proportions were small. About 7 per cent of the younger group had been in a driving accident compared to 17.8 per cent of the older group; males had approximately 4 per cent more accidents than females. Among older males, 2.1 per cent had been in an accident after drinking, compared with 1 per cent of females and 1.1 per cent of the younger group. The proportion of students who were convicted for drinking and driving never exceeded one per cent. However, over one-fifth of older males had driven within an hour of drinking, compared to one-sixth of older females and under one-tenth of the younger age group.

2. Profile of the in-school young adult in Ontario

Based on the ARF data we can add to the profile of the young adults in Ontario who are still in school as follows:

- Over 8 in 10 lived with both parents.
- The median grade they usually got was 73 per cent.
- Over three-quarters felt pressured to get good grades.

- A quarter usually spent time out of school, 'out with friends'.
- A fifth usually spent time out of school at a part-time job.
- The average amount they were allowed to spend per week, as they liked, was just under $140.
- Only a quarter rated physical health as excellent, just under 3 in 10, as poor.
- Three-quarters had participated in court sports in the previous 12 months and half in field sports other than football or track and field.
- One fifth had used tobacco regularly in the previous twelve months.
- Well over a third had used alcohol and just under one-tenth had used cannabis regularly in the previous twelve months.
- Other substances were used very little.
- One-third had never smoked, but over a tenth felt pressured to do so.
- Over half had taken a first smoke before grade 7 and had done so simply out of curiosity.
- Among non-smokers, over 4 in 10 had tried it once and a third felt it might be harmful or just stupid.
- While 4 in 10 had never had beer or hard liquor, over half had never tasted wine.
- Over one in ten drinkers had taken seven or more beers at a time, and about 1 in 7 had taken five or more drinks of hard liquor at a time; only 7 per cent had taken four or more glasses of wine at a time.
- Well over three quarters felt that it was easy or very easy to get alcohol.
- The proportion who had never used alcohol was only 11.7 per cent.
- Just under one in six felt that they had been pressured into taking alcohol.
- Just under 4 in 10 had taken a first drink before grade 7; a third had taken a drink the first time out of curiosity, and just over a quarter, at a special event.
- Two thirds of non-drinkers had tried alcohol once.
- Half of the drinkers did not feel that parents thought they drank too much, but just under 4 in 10 said that their parents did not know that they drank.
- In the 4 weeks preceding the interview, 1 in 6 had become 'tight' and 1 in 8 had been warned by police about drinking.
- Only 6 per cent of drinkers wished they could drink less than they did.
- While 72.1 per cent had never used cannabis, over 4 in 10 felt it was easy or very easy to get it.
- Only 6.2 per cent claimed that they were pressured to use cannabis.
- Just under a fifth had tried cannabis in grade 7 or before, and just under 6 in 10 had tried it the first time out of curiosity.
- Over 45 per cent of non-users felt that cannabis use was 'stupid' or might be harmful.
- While just under half felt that none of their friends used cannabis, 1 in 6 felt that half or more of their friends used it.
- Over 4 in 10 said that it was likely that they would use cannabis next year.
- While only 1 in 8 felt that the police would catch them using pot, over 3 in 10 thought it likely that parents would catch them using pot.
- Just over 3 in 10 felt that health problems could arise from using pot.
- One in five said that it was easy and very easy to get cocaine.

- Other than caffeine, stimulants were rarely used to improve performance in sports.
- In the previous 12 months, over half had injections of medical drugs; just over one in 10 had injections of heroine, cocaine and steroids, but only 1 in 16 had shared needles.
- In the last school year, three-quarters had taken classes on alcohol use, two-thirds on tobacco and other drugs and just under 6 in 10 on cannabis use.
- Only 0.7 per cent had ever been arrested for cannabis use.
- While over 7 in 10 had played sick in order to get out of doing something and 6 in 10 would try to get into a movie without paying, over 4 in 10 said they were willing to admit it, when they had made a mistake.
- Just over a fifth said it was 'OK' to get around the law if you could get away with it, and 1 in 6 felt you could do anything as long as you stayed out of trouble.
- Three-quarters had a driver's licence, including beginner's licence.
- About 18 per cent had been involved in a car accident; 4.2 per cent of this group had been involved more than once. However, only 1.6 per cent of all drivers had been in a car accident while drinking.
- Only 0.7 per cent had been convicted of drinking and driving, although 19.0 per cent said that they had driven within an hour of drinking.

Overall Conclusions: National Databases

The four databases considered in this section allow us to create a fairly clear picture or profile of the young adult learner. In the section devoted to these provincial databases, we discussed some of the limitations of the data. None the less, these sources of information, have enlightened our understanding of the context in which these young people are completing their secondary education. We will limit our comments here to data for Ontario (the more detailed data include comparisons for the rest of Canada as well).

These conclusions will contain a description of the overall profile and suggest factors which educators should be aware of in developing new curricula. While referring to the young adult learner in general, we will include reference to sub-groups such as dropouts, the poor, Aboriginals, non-official language groups, immigrants and visible minorities. We will also identify important differences between the sexes.

The Contrast Between the Adolescent Learner and the Young Adult Learner

In introducing the section on the use of provincial databases, we pointed to the number of serious changes taking place in the lives of most persons from around age 15. This is often in strong contrast to the age-group that precedes them.

Census data allows us to make this comparison and to highlight some of the main differences. Students in the younger age group are more likely to be living at home with both parents, while at least one in twenty of the older group are living in situations where no parents are present: one in ten live alone or with one other person. Considerably more of the older group feel the pressure to get good grades. This is probably because they are closer to making decisions about a career. Three times more of the older group have a part-time job. The younger group generally spend time out of school in their own homes or the home of friends. The older group are generally out with friends, doing non-school activities or just hanging around.

The younger people are one-and-one-half times more likely to rate their physical health as excellent. While younger people are more involved in court sports and track and field sports, older students are more likely to be involved in body building.

Older persons were two-and-one-half times more likely to smoke regularly, four times more likely to take alcohol regularly and seven times more likely to take cannabis regularly. The amount of beer, wine and hard liquor consumed by the older group was considerably higher than that of the younger group. Three quarters of the older group compared to less than half of the younger group felt it was easy to get hard liquor. Proportions of the older group who felt it was easy to get cannabis or cocaine were, respectively, three times and twice as high as proportions of the younger group.The two groups differed strongly in moral values as well. Sixty per cent of the older group compared to forty per cent of the younger group would try to get into a movie without paying. Over 7 in 10 of the older compared to under 6 in 10 of the younger group have played sick to get out of doing something. Twice as many older persons than younger persons would try to get around the law if they felt they could get away with it.

Naturally, while almost all young people had no licence to drive, over three-quarters of the older group had one. The above differences underline the considerable changes taking place in a variety of aspects of life, among specialization years learners.

Cultural Diversity

While this study is being carried out on a province-wide basis, it is important to keep in mind that there is considerable diversity within the province. One wonders to what extent a standard curriculum covering the whole province is appropriate, when the circumstances can vary quite sharply from one situation to another. For instance, just over a third of the age-group live in Toronto, and a further 20 per cent in the urban centres of Ottawa, Hamilton, Kitchener, St. Catherines and Niagara Falls... but 44 per cent live in the rest of Ontario. The experiences of persons in these different areas are most likely quite different. For instance, those from poorer families, were slightly more likely to be living outside of these urban areas. Aboriginals were much more likely to be living outside urban areas, while those with non-official mother tongues, immigrants and visible minorities were predominantly to be found in urban areas, Toronto, in particular.

The above differences mean that young adults in these different areas have very different experiences. For example, the question of heritage language programmes may be much less pressing in rural than in urban areas. The claim that visible minority young people are continually stopped by police and asked to produce identity, seems to be an urban problem. In contrast, the problems faced by Aboriginals in the schools, is predominantly a rural problem.

A curriculum addressed to persons in urban areas will have to take into account the larger 'turnover' of students: only 64 per cent of this age group were living in the same dwelling five years earlier. While 20 per cent had moved locally, one in six had made a change involving a definite change in school.

Socio-economic Differences

The circumstances in which these young people are studying varies quite considerably because of socio-economic conditions of their families. While around 15 per cent come from single-parent families, on the whole, this is over 30 per cent for those whose family incomes are below the median, 22 per cent for Aboriginals and around 20 per cent each for immigrants and visible minorities in particular.

The proportion of these students coming from large families (6 or more persons) was 13 per cent, but as high as 22 per cent for Aboriginals, 21 per cent for those with foreign mother tongues, 19 per cent for immigrants and 18 per cent for visible minorities. Other indices of socio-economic status were the proportions who depended on government transfer as a main source of income: 15 percent of poorer families and 20 per cent of Aboriginals, compared to an overall average of 7 per cent. Aboriginals had the lowest median family incomes ($32,413), followed by the foreign born ($36,370),those with foreign mother tongues ($37,269) and visible minorities($38,556) while the overall median was: $42,543. Naturally, there was considerable variation in home-ownership and in values of owned homes.

While a province like Ontario is dedicated to accessibility, and education is a right for all, it is obvious too, that the circumstances under which students carry out their studies can vary considerably. Those from poorer homes, Aboriginals, those from different cultural backgrounds and, in particular, immigrants and visible minorities, are likely to come from homes where conditions for study are not ideal. In some cases they may be hearing one language at school and another at home. Their parents may well have difficulties in communicating with the schools, and be of little assistance in aiding them with school work. In some cases they may experience prejudice and discrimination. Many cultural groups complain about their children being streamed away from the professions, by school counsellors and others in authority.

While it would be impossible to create a curriculum for each important sub-group, a curriculum which ignores the variety of circumstances experienced by the specialization years learner will certainly be inadequate.

Young Adults and their Use of Time

The 1986 General Social Survey Time Use Module has provided us with some of the most complex and thorough data available for gauging the quality of life of individuals: the way they spend their time and their feeling of satisfaction in ten major areas of life. This survey further permits a comparison of time use and satisfaction levels of young adults in school and those who have dropped out, as well as comparisons based on sex, mother tongue and birthplace. In focusing on these comparisons, several important findings will be highlighted in the context of their relevance for the educational system.

Students in Ontario spend the greatest proportion of their waking hours in education related activity: over six hours daily (370 minutes). Other major time expenditures for this group include media and communication, 173 minutes/day, entertainment (84 minutes/daily) and paid work (52 minutes/day). These statistics indicate the priorities in the lives of these students and have implications for the school curriculum. For one thing, such information about young adults' lives gives teachers and counsellors insight regarding these individuals' priorities; what they consider important. For example, knowledge that the average 15 to 19 year old in the school system works an average of nearly one hour per day in paid work, in addition to attending school for over six hours, will permit teachers to be more sensitive in terms of overburdening students with homework assignments, or will give them an understanding of why some students may be tired on some days or have not got their homework done on time. That this group also spends an average of over an hour per day in entertainment and nearly three hours a day in media and communication, a large proportion of which consists of watching television, is also important for further understanding the lives of young adults. While such information seems to point to "laziness" relative to the definition of the "work ethic," it is important to understand the great need for leisure and relaxation for any individual. These statistics have implications for understanding the quality of life of young adults.

Dropouts, on the other hand, spend the greatest proportion of their waking hours in media and communication (391 minutes/day) and paid work (198 minutes/day). The implications of such data are also important. For example, what can be said about a group who spends the greater part of their day in media and communication, mainly watching television? What can further be said with regards to a group that watches television more than they engage in paid work? Dropouts in Ontario clearly have a less enriched quality of life than those who are students, with clearly defined statuses and more clearly organized lives, at least in terms of daily productive activity.

In turning to subgroups of students in Ontario, their are substantial differences based on sex, mother tongue and birth place.

While most of young adults' waking hours are spent in educational activities, females tend to spend more time than males in educational related activity (400 vs. 337 minutes/day), in housework and child care (41 and 10 vs. 25 and 3 minutes/daily), and organizational activity. Males, on the other hand, tend to spend more time than females in paid work (78 vs. 27 minutes/day), shopping and services (18 vs. 13 minutes/day), entertainment (108 vs. 62), and media and communication (191 vs. 155).

In turning to a comparison of time use between Ontario students of English/French and other mother tongues, we also note some important differences. Those of Other mother tongue tend to spend much more time in education relative to students of English/French mother tongue:376 vs. 310. On the other hand, students of English/French mother tongue tend to spend more time in paid work (108 vs. 100 minutes/day), child care(8 vs. 4), entertainment (83 vs. 32 minutes/day), and sports/hobbies(37 vs. 13) and media and communication (190 vs. 150 minutes/day). There are only minimal differences between these two groups in terms of time use in other activities.

The final comparison is between Ontario students who are Canadian and foreign-born. Again, there are important differences between the two. Those of foreign birth spend more time in education (379 vs. 368), paid work (89 vs. 46), shopping/services (38 vs. 12), organizational activity (18 vs. 4), and sports and hobbies (41 vs. 36). Canadian born students, on the other hand, spend more time in housework (34 vs. 31), entertainment (88 vs. 56), media and communication (184 vs 96).

These subgroup comparisons are important in that they provide insight into the many differences in the way males and females, those of English/French and other mother tongue and those who are Canadian and foreign born live their lives. As a result of a variety of social and psychological factors, these different groups have different priorities in their daily lives which impact on their time use in education, paid work, entertainment. An understanding and sensitivity to these factors would surely assist teachers and those in authority in dealing with these different groups of students with diverse needs.

Life Satisfaction

The GSS 1986 also provided data on perceptions of satisfaction for young adults in Ontario.

Only a minority (24%) of dropouts in Ontario stated that they were very happy relative to more than half (53%) of those currently in school. Only a small proportion of dropouts in Ontario reported themselves to be very satisfied with their health (11%), jobs (20%), time use (20%),finances (23%), housing (33%), friendships (41%), partners or single status (42%), family relations (1.2%), and life in general (20%). On the other hand, the majority of students in Ontario reported themselves to be very satisfied with their health (59%), time use (55%), housing(60%), friendships (84%), partner or single status (73%), relations with their family (71%), self esteem (51%) and life in general (54%). Smaller proportions of Ontario students reported being very satisfied with their main activity (i.e., being students: 32%), and their finances (18%). Overall, those in school were much more satisfied than those who had dropped out. Such information points to the great need for intervention strategies averting the dropping out process when possible, at the level of the educational system.

In turning to the sub group analysis, it is clear that females were more likely to report being very happy than males (59 vs. 48 %), those of Other mother tongue than students of English/French mother tongue (63 vs. 50%),and students born abroad more than those who were Canadian born(78 vs. 50%).

Females are more likely than males to be very satisfied with their health, time use, housing, friendships, partner or single status, and life in general. Males, on the other hand, report being more satisfied than females in regards to their main activity, finances and self-esteem.

Those of Other mother tongue more often report being very satisfied with their health and life in general, while students of English/French mother tongue are much more likely to report being very satisfied with their main activity, time use, finances, housing, friendships, partner or single status, family relations, and self-esteem.

Finally, foreign born students are more likely to be very satisfied with their time use and self-esteem. Students who are Canadian born more often report being very satisfied with their health, finances, housing, friendships, partner or single status, family relations and life in general.

In sum, it is clear that there are significant differences based within sex, mother tongue and birth place in the context of life satisfaction. These differences are especially highlighted in the fact that those of Other mother tongue and foreign birth are much less satisfied with many aspects of their lives relative to those of English/French mother tongue and Canadian birth. Teachers and officials in the school system should view these statistics as indicators of "risk of dropping out." If certain sub groups of students report being less satisfied with areas of their lives, then those working with these students should be sensitized to this.

School Experiences

Probably the most important advantage of the 1989 General Social Survey data on Education and Work, was to allow a comparison of school experiences of those in school with dropouts among specialization years learners. And here we found what we consider to be an extremely important finding of our study. In response to a question on the eventual degree the age-group was hoping to attain, almost every student (96.5 per cent) still in school was planning to go on to some form of post-secondary education. Not a single dropout aspired to post-secondary education.

What are the implications of such a finding? For one thing, it could mean that the official definition of high school may not coincide, with the way it is perceived by this age group. Dropouts appear to have decided that they need no further education. Those staying in school appear to have decided that it is necessary to stay in school, not so much to improve one's chances of a better job (despite an advertisement currently been shown on television which appears to be stating this 'truth') but because they see it as necessary to continue their education. In other words, we could say that post-secondary education has 'unofficially' begun for those still in school.

One possible solution to keeping more from dropping out, could well be a change in the definition of high school. In Quebec for example, 'official' high school ends at an earlier age, then people go on to a CEGEP (junior college) before transferring to university. A thorough study of what is covered in the last years of high school, should take into account the needs of those who plan to continue to post-secondary education as contrasted with those who do not.

It is interesting to note that among the few who were still in school and who did not plan to go on to higher education, all were male, all had English or French as a mother tongue and all were Canadian-born. Some of the factors that distinguished stay-ins from dropouts included types of courses taken and interests. Dropouts were considerably less likely to be taking courses in chemistry, physics, computer use and word-processing. While equal proportions of both groups had access to a computer in the home, a fifth fewer of dropouts actually used the computer. Dropouts were as much as 30 per cent less likely to be interested in science and technology programmes, whether on television, radio, in newspapers or in magazines. They were also considerably less interested in new inventions or recent scientific discoveries. It is interesting to note that not a single dropout felt that government spent too little on education, while the proportion among those still in school was just under 50 per cent.

Involvement and Satisfaction

Although both the GSS 89 and GSS 86 posed some of the same questions, the following is with reference to the GSS 1989. Respondents to the survey were asked about their involvement in community activities and their degree of satisfaction in various areas. As well as comparing dropouts to those still in school, we made comparisons by sex, official language and birthplace. Dropouts were generally not involved in any form of volunteer work or community organization. But just under

3 in 10 belonged to a labour union. While equal proportions of dropouts and those still in school declared a religion (around 72 per cent), only 23 percent of the former compared to 73 percent of the latter, attended services at least a few times per year.

Among others, females were much more likely than males to be involved in church groups, declare a religion and attend church a few times per year. Males were more involved in sports and political organizations. Comparing those with official and unofficial mother tongues, the former were more likely to be involved in public interest groups. While slightly fewer of the foreign mother tongue group declared a religion, those who had a religion were almost 30 per cent more likely to attend services. Canadian-born were more likely to belong to a church group or political organization and a good deal more likely to declare a religion than the foreign-born, but again, among those declaring a religion, the latter, were more likely to attend services.

Thirty per cent fewer dropouts than those who stayed in school declared themselves to be somewhat or very happy. Not a single dropout was strongly satisfied with their education compared to 56 percent of those in school. They were also considerably less satisfied with: relationships with family and friends (40 per cent less);housing (25 per cent less); how they spent their time (11 per cent less) and self-esteem (12 per cent less). The only thing they were more satisfied with was their finances (20 per cent more).

While twenty per cent more females were satisfied with their housing and their marital status than males, twenty per cent fewer were satisfied with their self-esteem and 14 per cent with life as a whole. Those with official mother tongues were more likely to be satisfied with their education, marital status, relationships with family and friends and considerably more with their housing than those with foreign mother tongues. Similarly, Canadian-born were at least a fifth more satisfied with education and housing and a sixth more with their marital status than the foreign-born. But the latter had an almost twenty per cent advantage when it came to self-esteem. It is obvious that, the curriculum at the secondary school level,in addition to addressing itself to people with different socio-economic backgrounds, is also addressing itself to people with very different interests and values. To what extent can it take into account people with such diverse interests? To what extent is secondary school competing with all the other interests these specialization years learners may have? Again, it would be dangerous to ignore these competing interests of young people, while focusing exclusively on school problems. It seems obvious, from the above that young people weigh the advantages and disadvantages of staying in school and that those who drop out find the disadvantages weighing more heavily. Finally, we have to take into account the dilemmas that face people at this age... the age of greater interest in the opposite sex, of drinking, driving and drugs, to name but a few temptations placed in the way of these young people.

Dilemmas Faced by Young Adult Learners

We made reference to some of the findings of the Addiction Research Foundation study earlier when comparing this age group to younger people. Here we will focus on the 15-18 year olds and identify any differences by sex.

This study confirmed that as many as one-fifth do not come from homes where both parents are present. One quarter of their time is taken up, being out with friends and this is slightly more likely to be the case for females than males. But one-fifth of both groups are spending their time mainly at a part-time job. We already mentioned that they are a good deal less likely to feel that their health is excellent, but females are ten per cent less likely than males to feel that way: one third consider their health to be just good, fair or poor.

Females were slightly more likely to use tobacco regularly in the 12 months preceding the interview, a tenth less likely to use alcohol but just as likely to use cannabis (around a tenth each). Just under a thirty per cent had never ever used cannabis. But few took any of the other drugs, like speed LSD or cocaine regularly.

Just under 6 in 10 had never taken beer, just under half had never taken wine and two thirds had never taken hard liquor. Females were less likely to drink beer, more likely to drink wine slightly less likely to take hard liquor. They were also less likely to drink beer or hard liquor to excess. Almost no respondent in this age group felt there was any difficulty in getting alcohol. Those who did drink, did so for the first time, purely out of curiosity (about a third) while a further quarter did so at a special event. As many as 37 percent of drinkers said that their parents were not aware that they drank. Just under a fifth of males and just over a tenth of females had been 'tight' from drinking in the month preceding interviews.

Only a third felt it was impossible to get cannabis or were not interested. About six in ten users, used it for the first time out of curiosity. Just over 40 per cent of males and 45 per cent of females said it was likely they would use cannabis next year. But ten per cent more females (55.8 per cent) than males felt they would develop health problems from using it. About one third felt it was difficult to get cocaine. It was surprising to note that as many as 11 per cent of those females who injected drugs shared needles, compared to only 2 per cent of males.

In other areas, males were more likely to 'try to get into a movie without paying' (69 vs. 50 per cent) and felt it was alright 'to get around the law if you could get away with it' (29 vs. 16 per cent). One fifth of males and one-sixth of females had been in an accident while driving in the 12 months preceding interview. While 22 percent of males had driven within an hour of drinking, this was 16 per cent for females.

As well as facing the number of problems in the school system as a whole, the preparation for a possible career and having to weigh the possible advantages and disadvantages of continued education,young people are faced with a number of dilemmas. A number of these could have dire consequences on their futures. It is no secret that the rate of car accidents among teenagers is considerably high. From the data, it would appear that there is little or no problem to get access to drugs and alcohol. In addition, it is at this age that peer pressure to conform to these temptations is greatest.

Conclusion

While we may have few recommendations to make as to the solution to these problems, the databases do allow us to create as comprehensive a profile as possible of the young adult learner. It also points to the fact that changes to the curriculum, on their own are not sufficient. A complete change as to the way we approach these young people is necessary. Such an approach would be one that is sensitive to the different life styles and needs of this group in general and the many diverse subgroups within. If we are to truly make the educational system accessible to all and a structure that is sensitive to the diversity of the Ontario community, we must do this. The future of young adults is the future of Ontario as a productive and competitive province in the Canada and within the larger frame of the international sphere.

REGIONAL DATABASES

Literacy and Youth in Care

Introduction

Children and adolescents who come into the care of the Child Welfare system have typically come from family situations characterized by abuse or neglect as well as other disadvantages stemming from low family income, low levels of parental education, single parent families, a large number of siblings and inadequate child care (Lindsay, 1987; Raychaba, 1988). The negative circumstances associated with experiences within this type of family setting frequently influence the emotional, psychological and/or physical well-being of youth in care, and in turn, the learning process. While few studies have focused on understanding the educational problems of youth in care, there is some evidence that educational deficits occur in a majority of youth in foster care. For example, a recent report by the Canadian Child Welfare Association (1990) cited findings from Canadian and American research indicating that a large majority of foster children had failed at least one grade by the time they had reached grade three, that they are often several levels behind their grade placement in reading, arithmetic and other skills, and that they have a very high risk of dropping out of school.

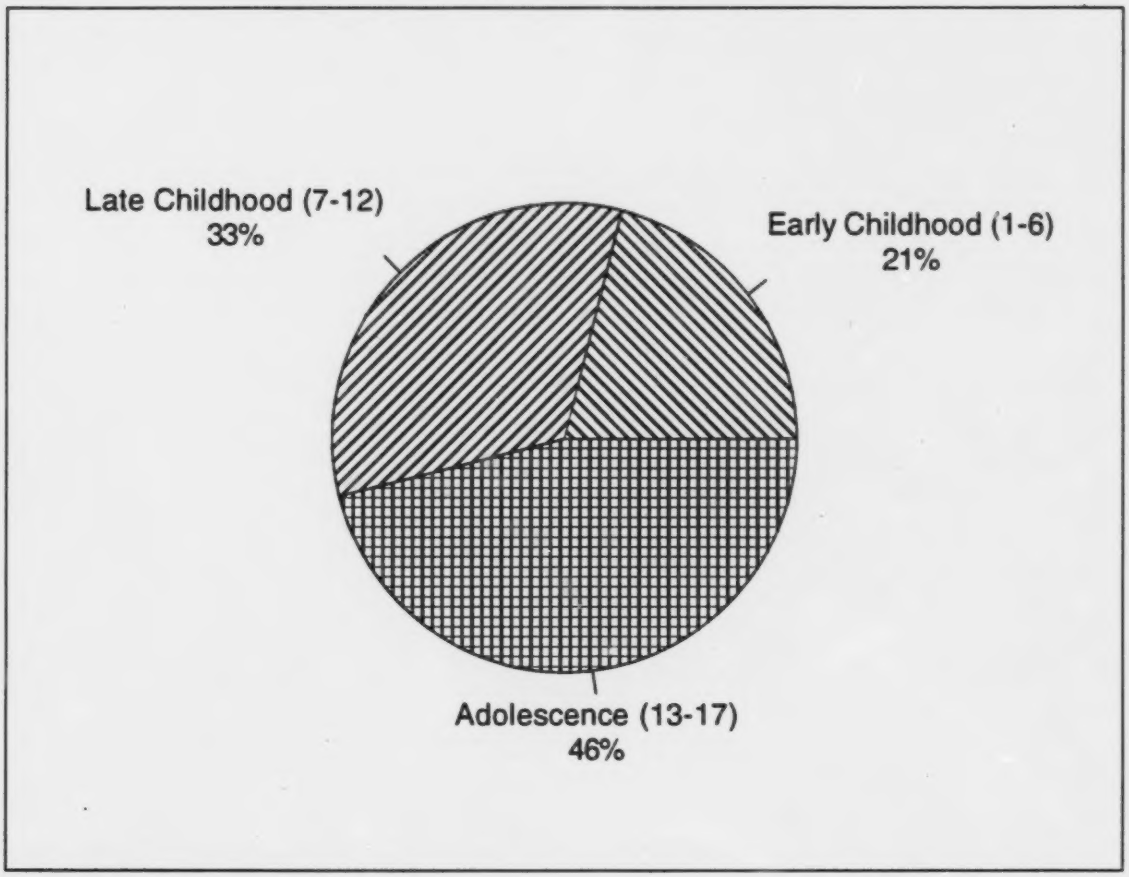
The Data

The data analyzed in this report were collected by the National Youth in Care Network as part of a study that was designed to provide descriptive data on the school experiences of youth in care, their views on educational programmes for youth in care and the effect of care experiences on learning. Participants in the study were 81 youth in care who were referred to the National Youth In Care Network and who agreed to participate in the project. Interviews were conducted in the spring and summer of 1989 in four Canadian cities: Halifax, Montreal, Toronto, and Calgary. The age range of participants was 15 to 23 years but 86 per cent of the sample was between the ages of 16 and 18. Females were underrepresented in the sample, since 73 per cent of the subjects were males and 27 per cent were females. At the time of the interview, 68 per cent of the subjects were in care, while the remainder were post-care.

Foster Care Experiences

Youth in the sample were most likely to have entered foster care during later childhood (one-third) or adolescence (nearly half of the subjects) while a minority had entered care when they were young children (see Figure 31). As is a relatively common occurrence among youth who enter the foster care system, many of the young people in the present sample had moved frequently from placement to placement. Figure 32 shows the number of placements for these adolescents. The majority of subjects had experienced four or more foster care placements and more than one third of these (approximately one fifth of the total sample) had gone through nine or more placements. One of the male subjects stated that he was moved forty-four times during his thirteen years in the foster care system.

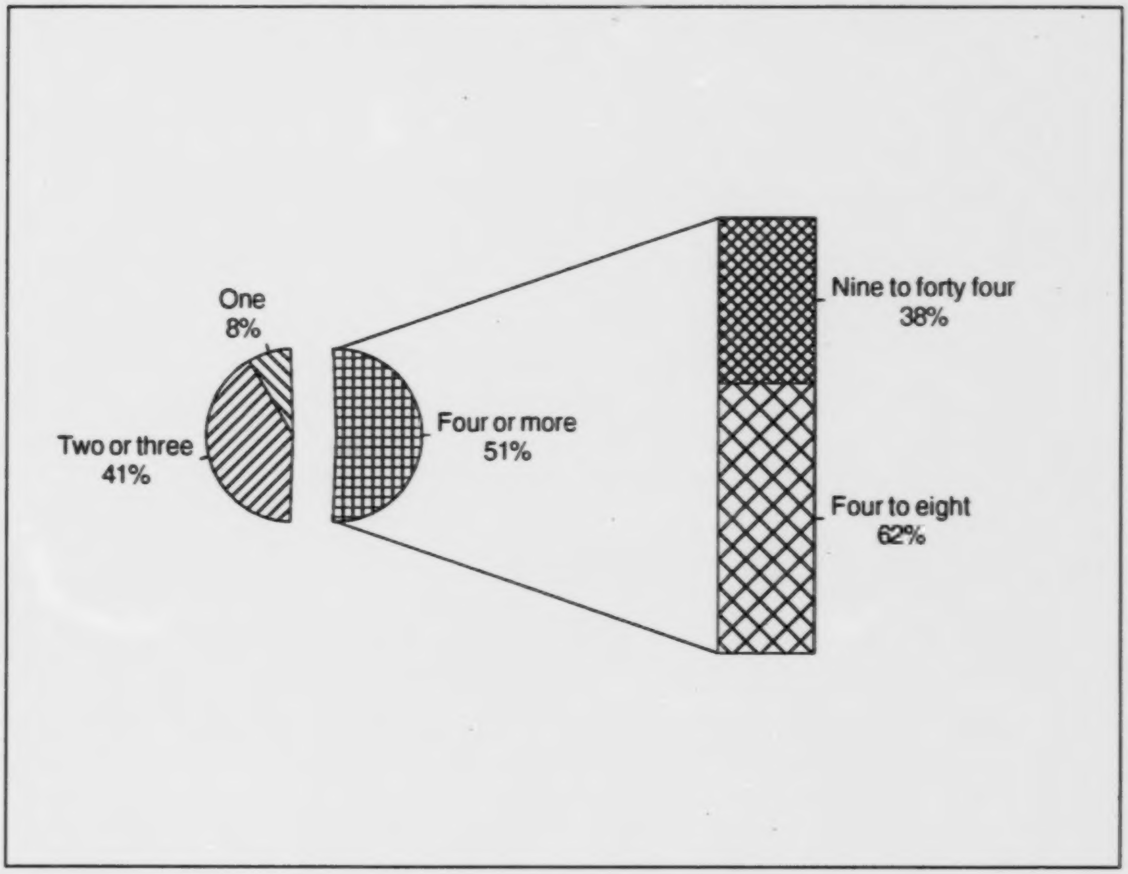
Figure 31 Age of Entry into Foster Care



School Experiences

There was considerable diversity in the experiences of the youth with regard to the number of elementary and secondary schools they had attended. Approximately 20 per cent of the youth had attended a single elementary school and the corresponding percentage at the secondary level was 30 per cent. Figure 33 shows the number of primary and secondary schools attended by youth in the sample. Based on these data, it was evident that many of the youth in care had experienced considerable disruption in schooling. Similar proportions of students had attended only one or two elementary schools as had attended one or two secondary schools. A slightly larger proportion of the youth had experienced a high level of school changes (i.e. attended 5 to 12 schools) at the primary level than at the secondary level while a larger proportion of the youth had experienced a moderately high level of school changes (i.e. attended 3 or 4 schools) at the secondary level. It should be remembered though, that since secondary schooling occurs over a shorter period of time, changing schools three or four times in one's high school career represents a significant rate of disruption. When the number of primary and secondary schools was totalled to determine the total number of schools attended, it was clear that only a minority of the youth had attended four or fewer schools, while slightly over half of the sample had attended between five and eight schools (see Figure 34). The most extreme case in the sample reported attending twelve elementary schools and nine

Figure 32 Number of Foster Care Placements



secondary schools. This individual was one of the dropouts in the study. Changing schools is a stressful experience for most young people (Dusek, 1991) and frequent school changes has been regarded as a factor related to dropping out of school (Rice, 1990). Results of cross tabulations of educational status (i.e. dropouts versus in-school) by the number of elementary and secondary schools attended suggested that the dropouts in the sample had experienced a slightly higher level of school changes as compared with the in-school group (see Figure 35 and Figure 36).

There was a fairly high dropout rate among study participants (40%) and for nearly 10 per cent of these the last completed grade was in elementary school. Three had a grade six education and one had only grade four. All of those who had dropped out of school had left before grade 12 and most had dropped out after completing grades 9 or 10. While 58 per cent of the youth were still in school, most of the in-school group appeared to be at some risk of dropping out (based on certain characteristics). For example, 43 per cent of the in-school youth were two or more years older than peers in their classes, 26 per cent were in a basic or special education programme and 61 per cent were in a general level programme (only 8% of the participants were in or had been in an advanced programme). In addition, three of the in-school group stated that they did not believe they would obtain a high school diploma.

Figure 33 Number of Elementary and Secondary Schools Attended

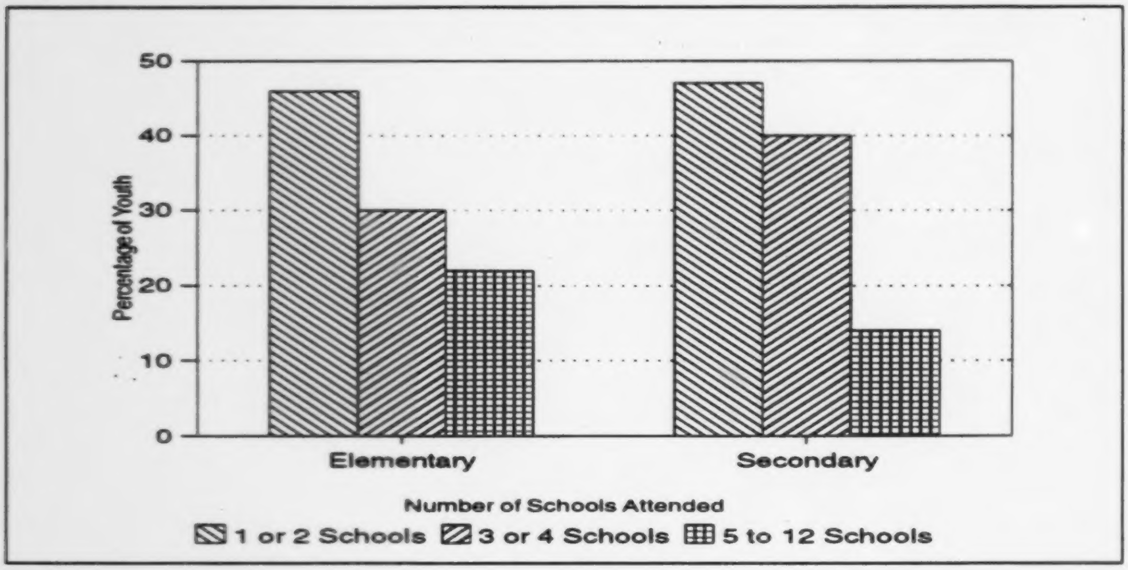
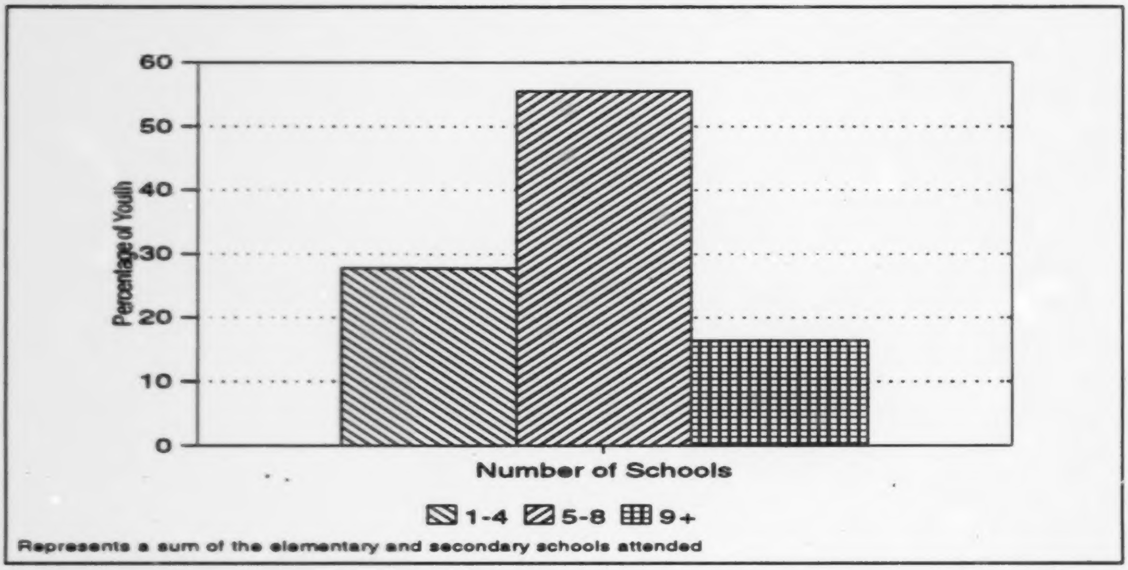


Figure 34 Total Number of Schools Attended



Represents a sum of the elementary and secondary schools attended

Problems with Learning in Elementary and Secondary School

Just over half of the participants perceived elementary school as a negative experience and over one-third indicated that their secondary school experiences were generally negative (see Figure 37). Only a small minority of the youth indicated that they had not had some specific problems with learning in either primary or secondary school. The category of problems cited by most of the youth was curriculum problems and a larger proportion of the students indicated experiencing such problems

Figure 35 Status and Number of Elementary Schools Attended

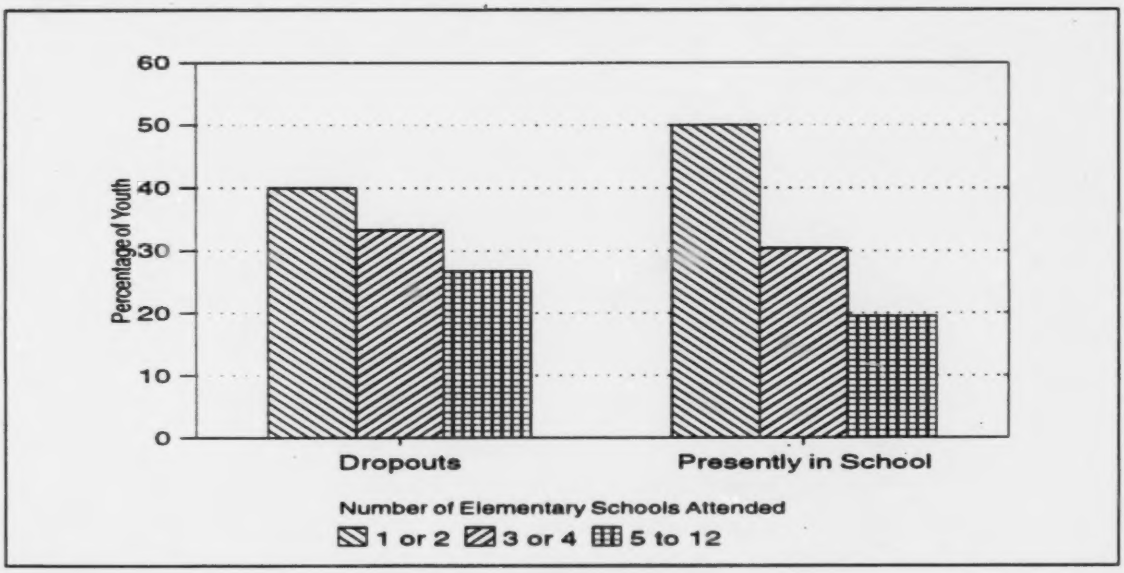
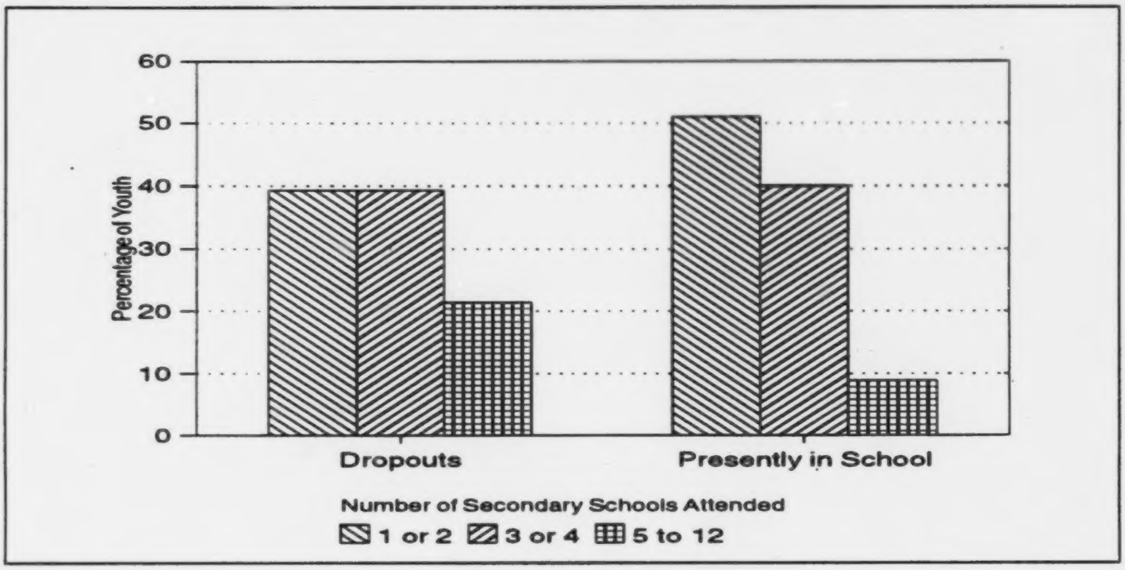


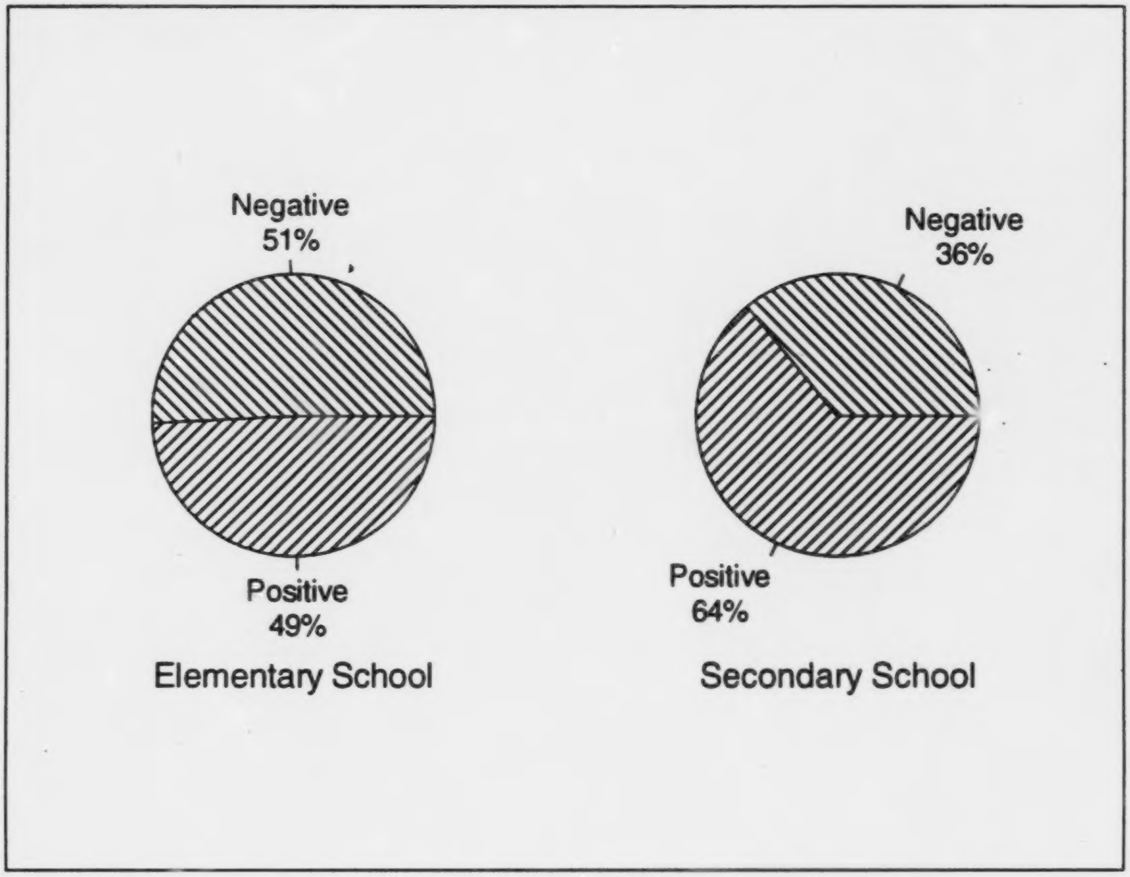
Figure 36 Status by Number of High Schools Attended



during high school than during primary school (see Figure 38). Students who mentioned curriculum problems referred to boredom, crowded classes, or to difficulties with specific subjects such as math, English, or science. Participants were more likely to refer to behaviour problems as a source of difficulty with learning in secondary school and just over one-third mentioned that they had experienced such difficulties. Behaviour problems cited by youth included being disruptive in class, fighting, skipping classes, and not doing any work. Personal problems mentioned were having learning disabilities, family problems, frequent moves, drug use, and not being liked by other students. About twice as many of the youth stated that personal problems were a source of difficulty with learning in elementary school as mentioned this category for high school.

Educational and Occupational Expectations

Figure 37 Perceptions of School Experiences



Most of the dropouts had retained some level of commitment to schooling, since only one-third stated that they did not plan to obtain a high school diploma. One-third had plans to obtain a high school diploma or to attend college and, surprisingly, 30 per cent stated that they expected to attend university (see Figure 39). There was an age difference in educational expectations among the dropouts. Older out-of-school youth were slightly more likely to reject education altogether, while almost half of the younger dropouts had plans to go to college or university. Among the in-school group, only a few students did not expect to graduate from high school, while the majority expected

Figure 38 Learning Problems in Elementary and Secondary Schools

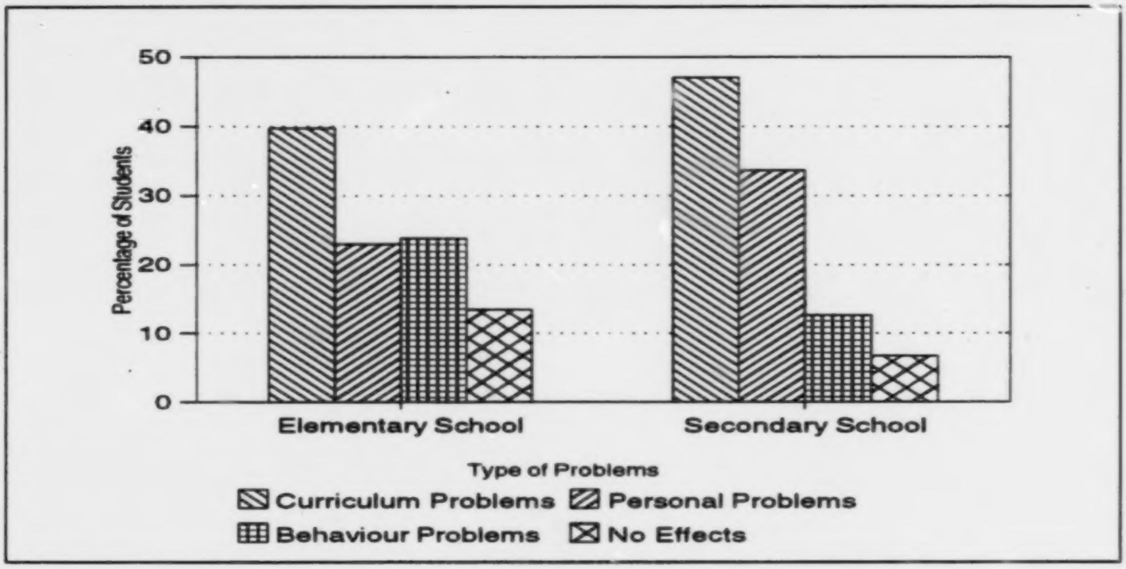
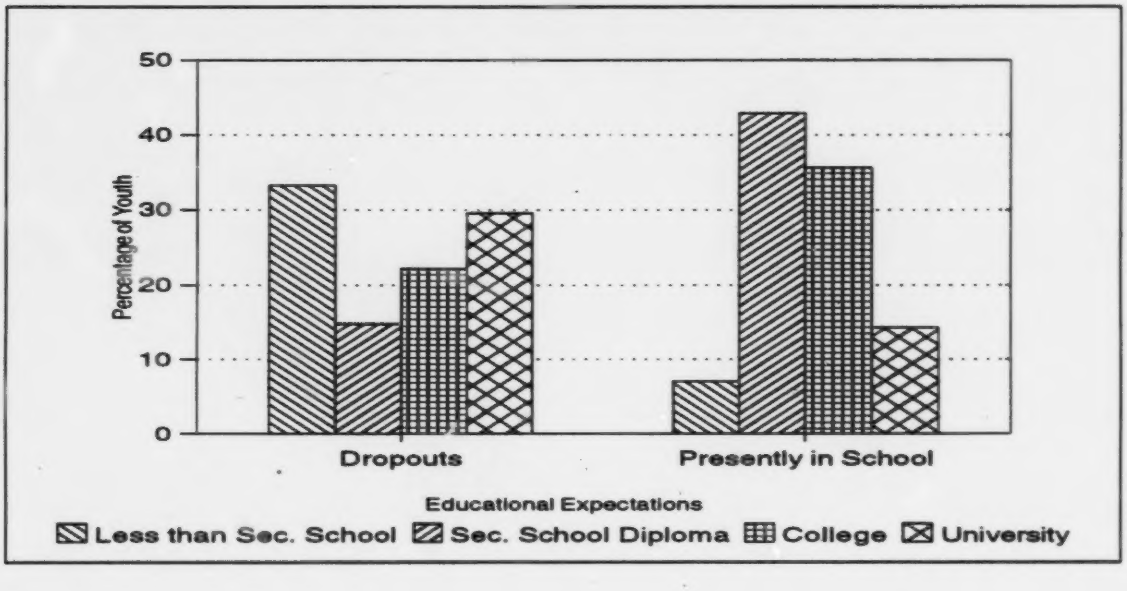


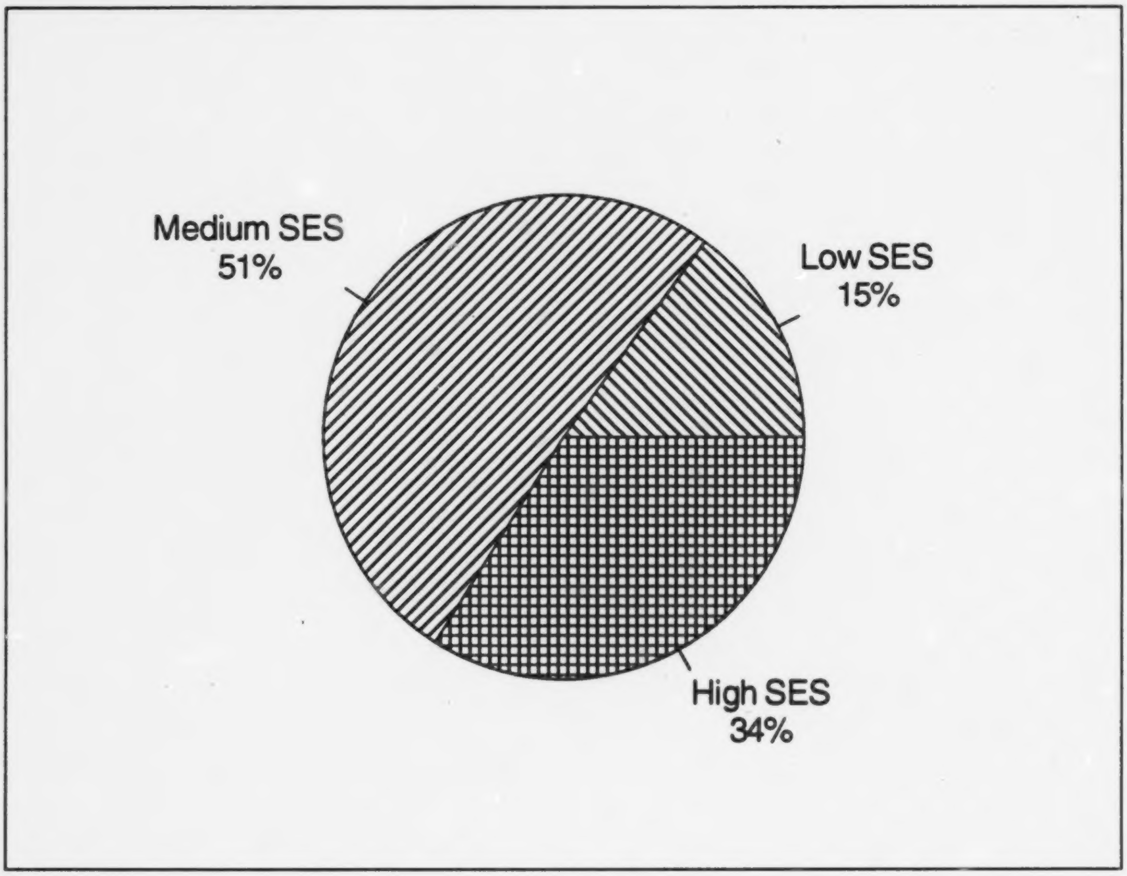
Figure 39 Educational Status by Educational Expectations



to terminate their education with a secondary school diploma. Approximately one-third expected to attend college and a small minority expected to attend university. It would appear as though the in-school youth are more realistic in their views of their educational pathway.

A substantial proportion of the youth had high occupational expectations (Figure 40). Those who had expectations to attain high level occupations, indicated that they wanted managerial or professional occupations (e.g. physician, lawyer, engineer or architect). Youth with middle level

Figure 40 Occupational Aspirations



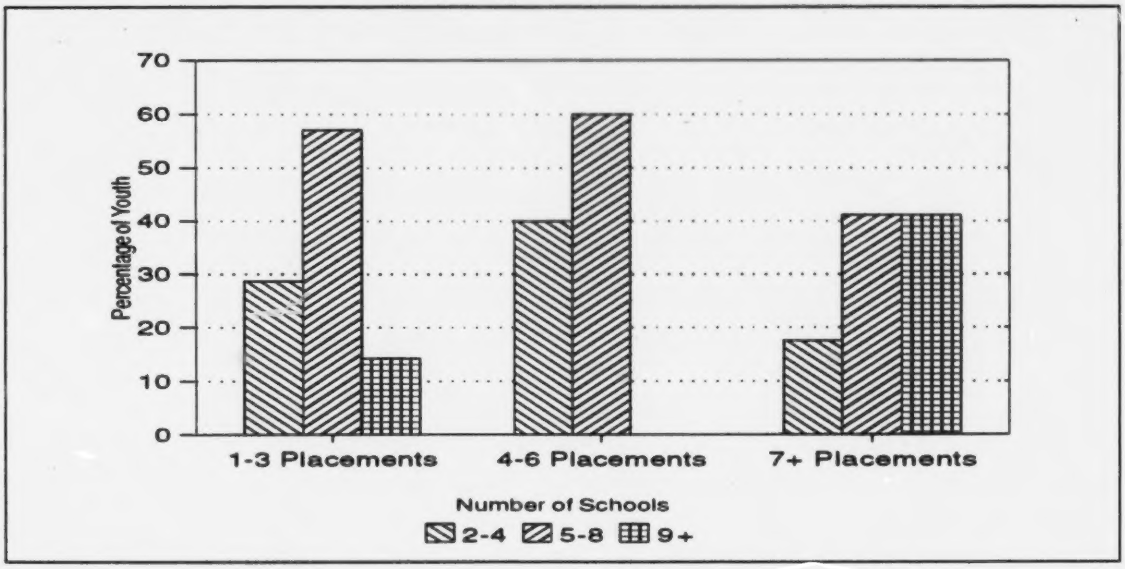
occupational expectations named occupations such as social/community worker, nursing, photography, performing arts, sports occupations and religious occupations). Low level occupations chosen consisted of occupations in various fields such as clerical, food services, construction, manufacturing, and mechanics.

Relationship Between Foster Care and Schooling Experiences

Figure 41 presents a breakdown of the number of care placements by the number of schools attended. As this figure indicates, most of the youth in the sample had experienced a considerable degree of instability in home life, school life, or both. Most of the youth who had a small number of placements had attended a moderately high or high number of schools and most of the youth who had an intermediate number of placements had also attended a moderately high number of schools. Those in the sample who had been through seven or more placements were more likely than the others to have attended a large number of schools; only about a fifth of this group had attended three schools or less.

Participants were asked whether being in foster care had affected their learning and of the nature of any perceived effects. One fifth of the sample stated that they did not feel that being in foster care

Figure 41 Number of Placements by Total Number of Schools Attended



had affected their learning in any way. Approximately one third noted that foster care had beneficial effects on their learning. The remainder (45%) stated that foster care experiences had negatively influenced their learning.

When asked specifically whether there had been any positive effects of their care experiences on learning, only one quarter of the sample could think of and articulate positive aspects. Most of these mentioned foster parents or group home staff who had helped them by providing support, or that being in care had helped their behavioural problems; a smaller number stated that the circumstances of the care environment helped them with learning.

Seventy five per cent of the participants responded to a question specifically asking about negative effects of being in care. The responses centred around three general areas: 12 per cent mentioned the stigma of the experience (i.e. being made fun of by others, the difficulty of making friends because of being a foster child); 57 per cent mentioned the circumstances of life in care (i.e. having to miss out on educational opportunities due to such things as court appearances, frequent moves, lack of support, abusive foster parents, being tired due to having too many chores); and 12 per cent mentioned personal problems (psychological strain, attitude problems, problems with natural parents, set-backs with learning disabilities). Youth who had been in larger number of placements were more likely to mention negative effects of their foster care experiences.

Satisfaction with Level of Learning

When asked whether they were satisfied with their level of learning, 44 per cent of youth said no. In addition, 34 per cent stated that their level of reading and writing had kept them from doing things such as understanding leases, taking drivers' tests, and completing job applications. Youth who had dropped out of school tended to be less satisfied with their level of learning.

Perceived Solutions to the Educational Problems of Youth in Care

Participants were asked for their opinions on what could be done to help youth in care with learning problems. Ninety four per cent of the participants had some ideas about issues that should be addressed. These fell into two categories: specific programmes to address the unique learning needs of youth in care (more than one half believed that youth in care should be given extra help in classes, specific programmes or individual tutoring); counselling to improve self-esteem, to provide support and encouragement or to determine how personal circumstances interfere with learning.

Summary and Conclusions

The results of this study indicated the nature and extent of learning problems for this group of youth in care. The dropout rate among participants was high, the majority had followed high school studies in a basic or general level programme and most of the participants stated that they had experienced difficulties with schooling. Being in the care of the Child Welfare system clearly influenced schooling experiences. While a few of the participants stated that entry into foster care had been beneficial, the majority cited negative effects. Some of these were the consequences of instability in their home and school lives. Many of the young people in this sample had experienced numerous changes of foster placements and schools. Very few students had experienced both a small number of placements and few changes of schools since most of the youth who had a small number of placements had changed schools several times. Changing schools is stressful for children and youth since this severs existing routines and relationships with peers and teachers. For youth in foster care, changing schools frequently coincide with changes in foster placements, also a very stressful event. Dropouts within this sample had experienced a greater number of school changes. This suggests that, where possible, efforts should be made to maintain stability in the school setting, particularly when changes of foster care placements must occur.

Examination of the educational and occupational expectations of youth in this sample indicated that many youth had unrealistic expectations regarding future attainments. This was particularly true for the dropouts in the sample, many of whom stated that they had set high educational and occupational goals. Given that these young people had experienced difficulties with schooling and had dropped out of school, the likelihood of their goals being realised would appear to be small. It is possible that these young people had a poor awareness of the educational requirements for various career pathways and thus, had misconceptions about the options and opportunities available to them. (This line of reasoning is supported by evidence from the Career Awareness Regional Database which indicated that youth from lower socioeconomic origins and those in non-academic high school programmes were less knowledgeable about the labour market.)

Based on their own experiences, the study participants expressed their opinions on measures that should be taken to assist youth in care with learning problems. These comments focused on two areas. Firstly, these young people stressed the needs of youth in care for extra help or tutoring to be successful in schoolwork. This seems to be essential given the pervasiveness of specific learning problems and the high degree of instability and disruption in their personal and school lives. Secondly, participants noted the need for counselling services within the school. Youth who have experienced stigmatization (from being foster children), difficulty in making friends, lack of support and encouragement, various forms of abuse, drug problems etc. would clearly benefit from assistance in dealing with these difficulties.

Dropouts

Introduction

A considerable body of research has documented the characteristics and risk factors associated with dropping out of school. While reporting on important characteristics of the school leavers who participated in the study, the present report has focused on describing dropouts' views of school, parental involvement in the adolescent's education and level of parent-adolescent interaction. A comparison has also been made between in-school youth and the school leavers on these issues.

The Data

Subjects in the dropout sample were youth who had dropped out of schools located in an urban setting in Northern Ontario during 1991. Structured questionnaires were completed during the course of an individual interview. Ninety-nine young people participated in the study, of whom 62 per cent were male and 38 per cent were female. The comparison sample consisted of 76 grade 11 and 12 students who attended a high school in the same Northern Ontario city as the one from which the dropout sample was taken. Students completed self-administered questionnaires in the fall of 1991 during a regular classroom period.

Results and Discussion

As noted above, the focus of this report is on school leavers. Thus, results are reported for the sample of out-of-school youth only, with the exception of a description of the background characteristics of the student sample and selected comparisons of school-leavers' and students' family relationships, parental involvement in schooling, as well as educational and occupational aspirations.

Family Background and Living Circumstances for School Leavers

The rate of family dissolution among the families of the school leavers was slightly higher than that for the general population, since 36 per cent of the sample reported that their parents were divorced or separated. At the time of the study, 42 per cent of the youth were living with both of their natural or adoptive parents, 32 per cent were living with only one of their parents, and 26 per cent were living on their own or with peers. With regard to financial support, 20 per cent were living on employment income, while 29 per cent were dependent on welfare, 5 per cent were dependent on UIC and 46 per cent were relying on financial support from parents. These findings clearly indicate that few of the youth in this sample were able to achieve economic independence after dropping out of school.

Participants were most likely to come from families with low or middle socioeconomic status (see Figure 42 and Figure 43). Subjects' fathers were slightly more likely to have middle status occupations, while their mothers were more likely to have low status occupations. Nearly half of the mothers and over two-thirds of the fathers had not graduated from high school (and many of these had only a primary school education). Consistent with general trends in female labour market

Figure 42 Mother's *ses* and *ed* Status

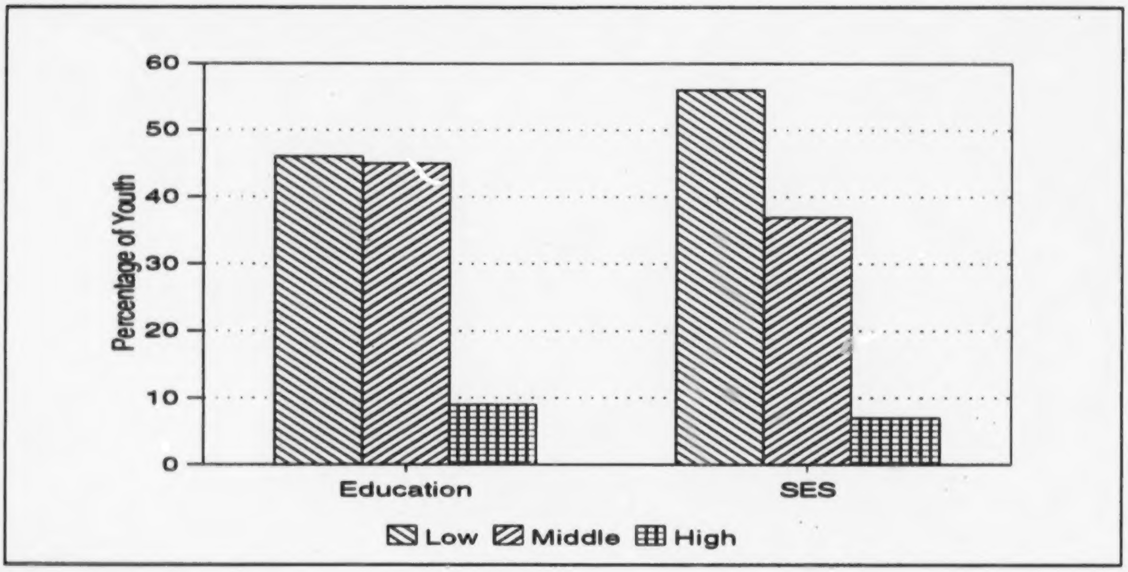
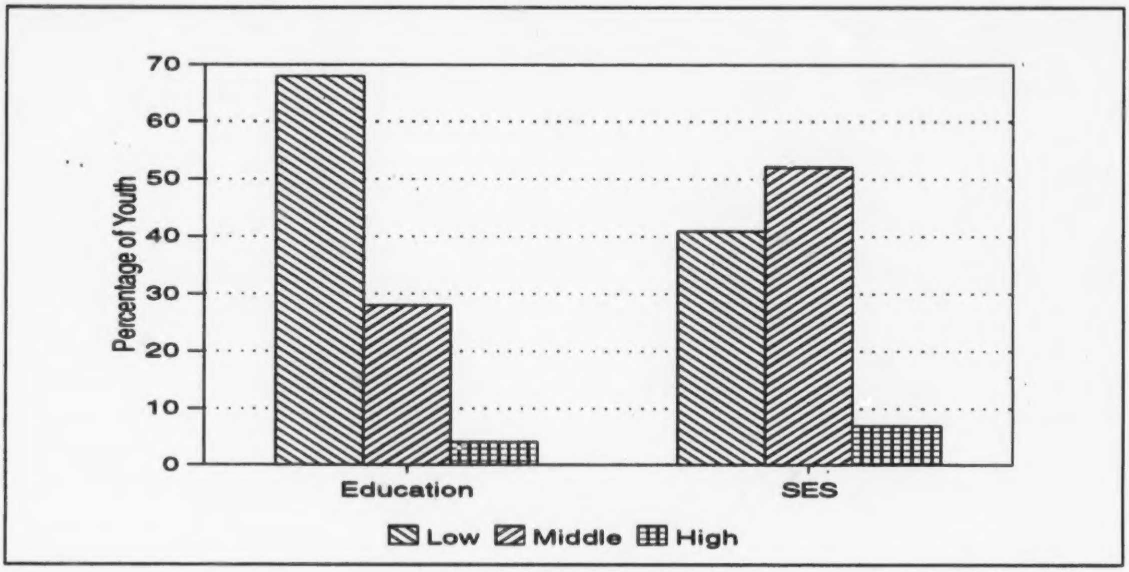


Figure 43 Father's *ses* and *ed* Status



participation, approximately two-thirds of the subjects' mothers were employed at the time of the study. There was a high rate of unemployment among participants' fathers, since 19 per cent stated that their fathers were unemployed. In addition, 40 per cent of the young people stated that someone in their household (other than themselves) had received some type of social assistance in the last year.

Comparison of Family Background for Students and School Leavers

Twenty six per cent of the students stated that their parents had divorced. Thus, youth in the student sample were somewhat less likely than the school leavers to have experienced family dissolution. Eighty per cent of those who were not living with both of their natural parents were living with their mothers, and the remainder lived with their fathers. Students were much more likely to have come from dual-income families with middle or high socioeconomic status compared with the school leavers. In the student sample, 82 per cent of the mothers and 87 per cent of the fathers were employed. Only 12 per cent of the fathers were unemployed at the time of the study, compared with 19 per cent of the fathers of the dropouts. While over two-thirds of the fathers and nearly one-half of the mothers of the dropouts had not completed secondary school, this was true for only about one-fifth of the fathers and mothers of the students (21% and 19% respectively). In addition, few of the students' fathers and mothers held low status occupations (11% of the fathers and 20% of the mothers) and they were more likely to hold high status than middle status occupations (50% of the fathers and 44% of the mothers).

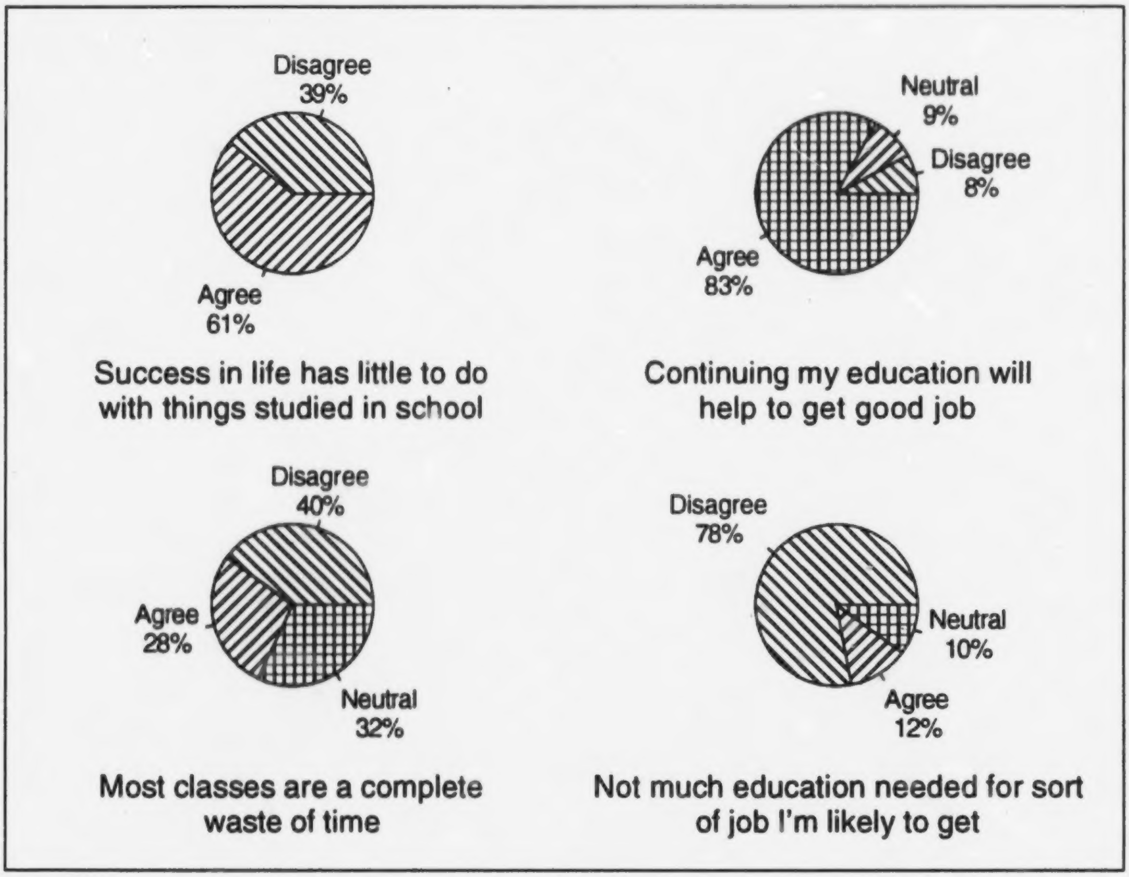
School Experiences and the Experience of Dropping out of School

As has been noted in earlier studies of dropouts, the vast majority (75%) of the youth had taken most of their courses at the general level (e.g. King, 1985; Radwanski, 1987) while almost equal proportions had followed basic and advanced level programmes (13% and 12% respectively). Approximately three-quarters of the participants had completed grades 10 or 11 (35% and 40%) before they had dropped out, 21 per cent had completed grade 9 and 4 per cent had completed grade 8. About one-half of these young people had previously dropped out of school at least once. In response to a question asking whether anyone had tried to discourage them from dropping out, 69 per cent of the youth indicated that others had done so. A much smaller proportion of the school leavers stated that others had actively encouraged them to leave school (23%). Table 21 indicates that family members were the most frequently cited as those who encouraged the youth to stay in school. Mothers and fathers were mentioned most frequently (24% mentioned mother and 19% father), followed by siblings (13%), while grandparents, stepparents, and aunts or uncles were mentioned by fewer of the dropouts. Those who reported that they had been encouraged to leave school were most likely to cite school personnel (60%) as encouraging them to do so. Most frequently cited were principals or vice-principals, while a few dropouts mentioned teachers or guidance counsellors as sources of influence in this regard. Friends were more likely to have been cited as sources of encouragement for leaving school than were parents or other family members.

Educational Values and Perceptions of Schooling and Teachers

Responses to a series of questions about the value of education indicated that the majority of the school leavers had continued to believe in the importance of pursuing an education (see Figure 44). Only a very small minority disagreed that continuing their education would assist them in obtaining a good job and most did not subscribe to the view that they would be working in jobs that did not require much education. On the other hand, a majority of these young people did not define success in life as deriving from school and many were ambivalent or dissatisfied with classes, rating them as a waste of time.

Figure 44 Educational Values



Success in life has little to do with things studied in school

Continuing my education will help to get good job

Most classes are a complete waste of time

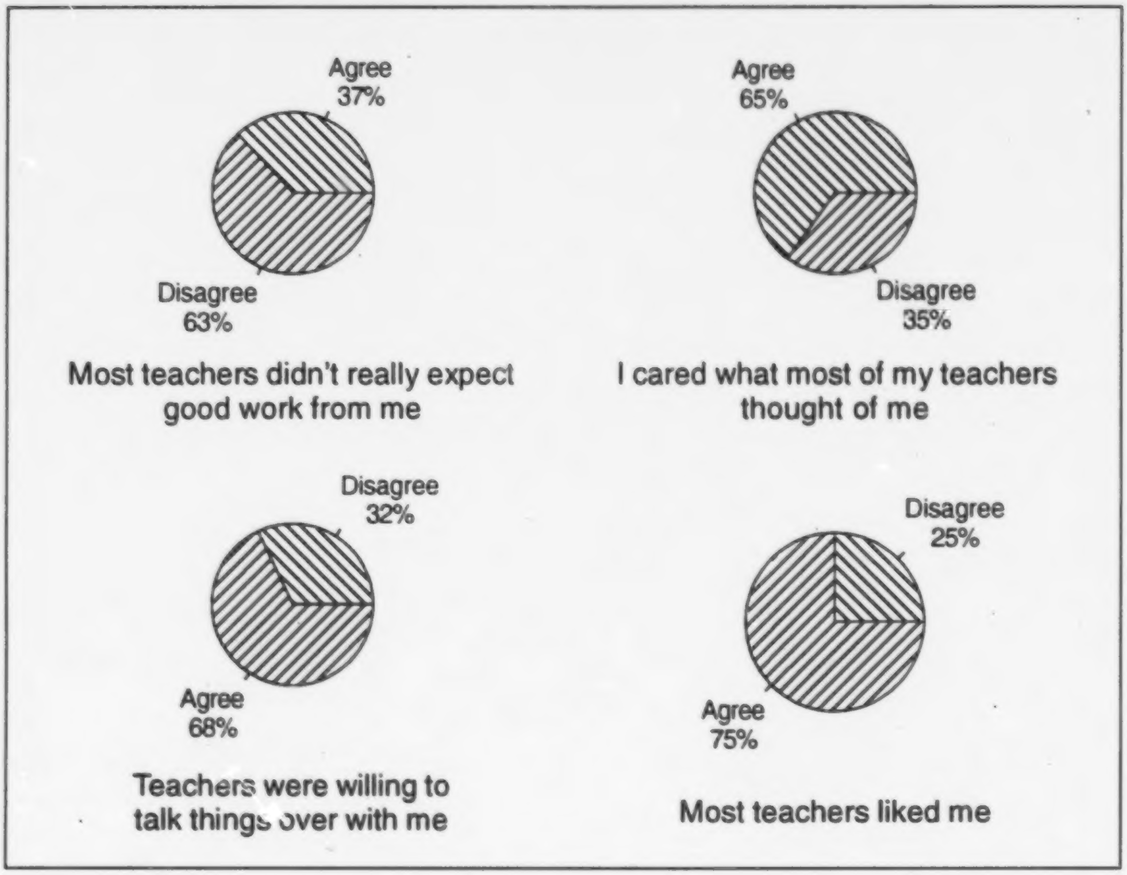
Not much education needed for sort of job I'm likely to get

A majority of the dropouts rated teachers very positively (see Figure 45). Approximately two-thirds stated that their teachers expected good work from them, that teachers were willing to talk things over with them and a similar proportion stated that they cared what teachers thought of them. Additionally, three-quarters of the school leavers reported that they believed most of their teachers had liked them. Thus, it appears that only a minority of these dropouts had poor relations with their teachers.

Youth in the study were less positive in evaluating other aspects of schooling. Figure 46 shows that a majority of the school leavers were dissatisfied with the repetitive nature of school, perceived that they were usually treated like children, and that classes were usually boring. Despite this pattern of results, only a minority of the school leavers clearly indicated that they had not enjoyed their time in school.

Unfortunately, comparison data on the above questions were not available for the student sample described in this report. It is, however, possible to compare the responses of the dropouts with those reported for students in another of the regional database analyses, **Transition to Work: A Study of High School Students in Two Ontario Cities**, since students in the latter project answered many

Figure 45 Rating of Teachers



Most teachers didn't really expect good work from me

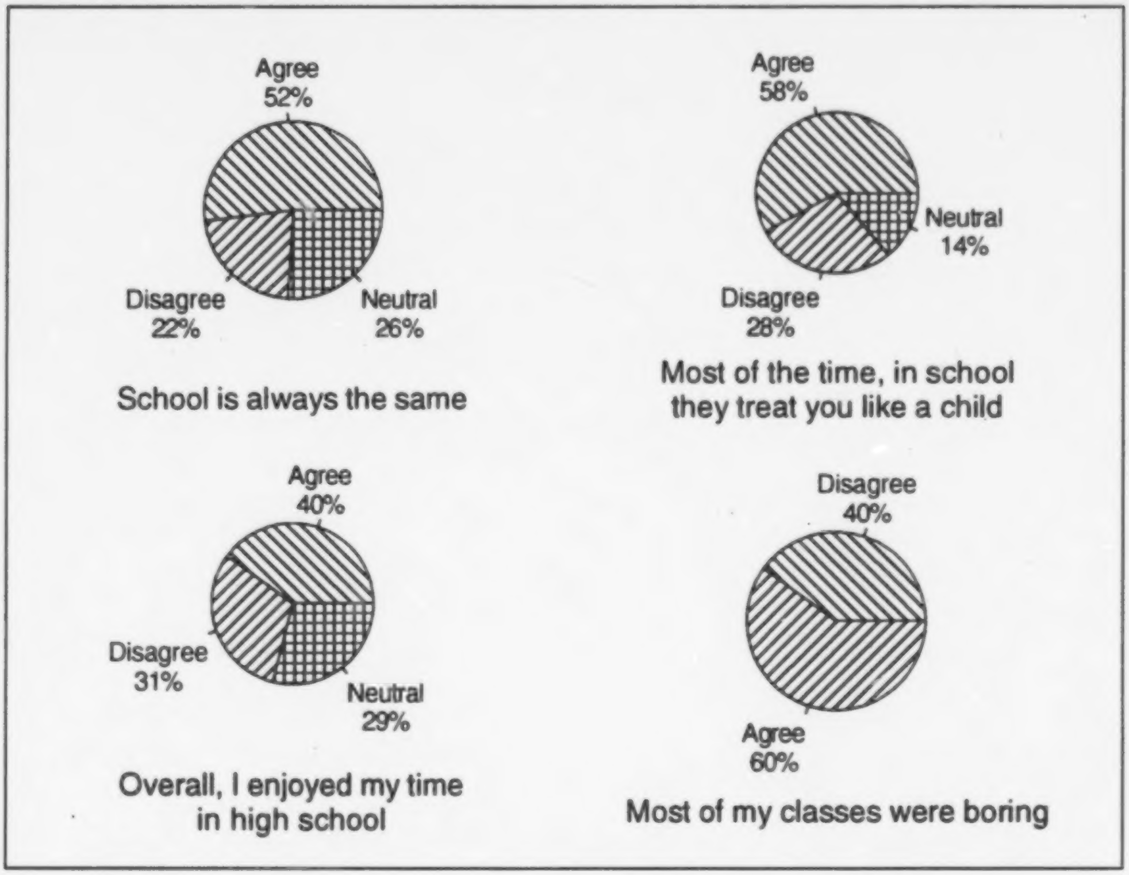
I cared what most of my teachers thought of me

Teachers were willing to talk things over with me

Most teachers liked me

of the same questions as the dropouts. It is of considerable interest that the dropouts were slightly more likely to indicate a belief in the value of education in the occupational attainment process. For example, 72 per cent of the Two-Cities student sample agreed that continuing their education would help to get a good job, but 83 per cent of the dropouts indicated agreement to this question. Additionally, similar proportions of the dropouts and Two-Cities students stated that they usually completed their homework (45% and 43% respectively, the dropouts' responses to this question are not shown in this report). In contrast, more of the dropouts evaluated various aspects of the schooling process negatively. Dropouts were more likely to believe that most classes are a waste of time, that students are treated like children, and substantially fewer dropouts stated that they had enjoyed their time in school overall. The overall pattern of results suggests that the school leavers, like in-school youth, showed a high level of commitment to education and had continued to believe in the importance of education upon entry into the labour market. Dropouts differed from in-school youth in that they experienced higher levels of dissatisfaction with schooling processes.

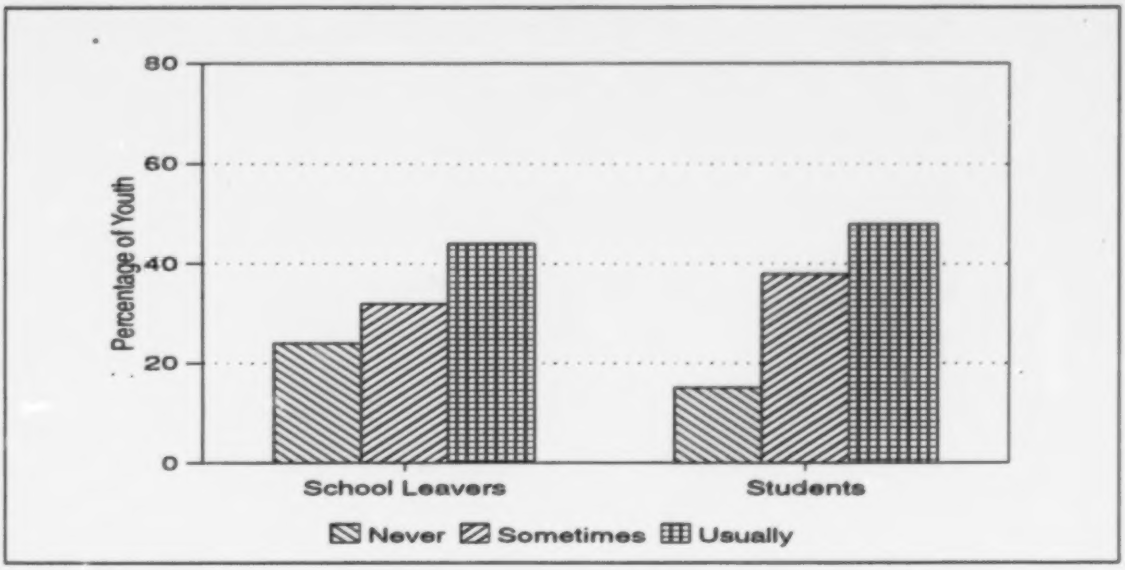
Figure 46 Perceptions of Schooling



Parental Involvement in Schooling and Relationships with Parents among Students and School Leavers

Comparison of responses to questions on parental involvement in the youths' schooling showed some dramatic differences between the student and the dropout samples. All of the youth rated their mothers' and fathers' involvement in various aspects of schooling (see Figure 47 to Figure 55). It was evident that the mothers of youth in both samples were more involved than were the fathers. In addition, on every aspect of schooling measured, a larger proportion of the dropouts rated their mothers and fathers as having a low level of involvement than did the students. In particular, dropouts were most likely to report that neither of their parents ever attended school programmes for parents or helped them to choose courses. Among the in-school youth, the overall response pattern suggested that at least one of the parents maintained a high level of involvement in various aspects of schooling. The differences between the dropouts and the students were most striking for fathers' school involvement. Only a minority of the dropouts indicated that their fathers showed a high level of involvement in school programmes, helping with homework, choice of courses and monitoring of the youths' school progress. In considering these results it should be remembered that the dropouts reported a higher level of family dissolution. If, as seems probable, the level of involvement in children's schooling declines when the father no longer lives with his children, the

Figure 47 Mother Helps with Homework



lower level of paternal involvement in schooling among the dropouts, may in part, be a consequence of family dissolution. Whatever the cause, it is clear that dropouts perceived their parents to be less involved and supportive of their schooling.

Figure 48 Family Interaction

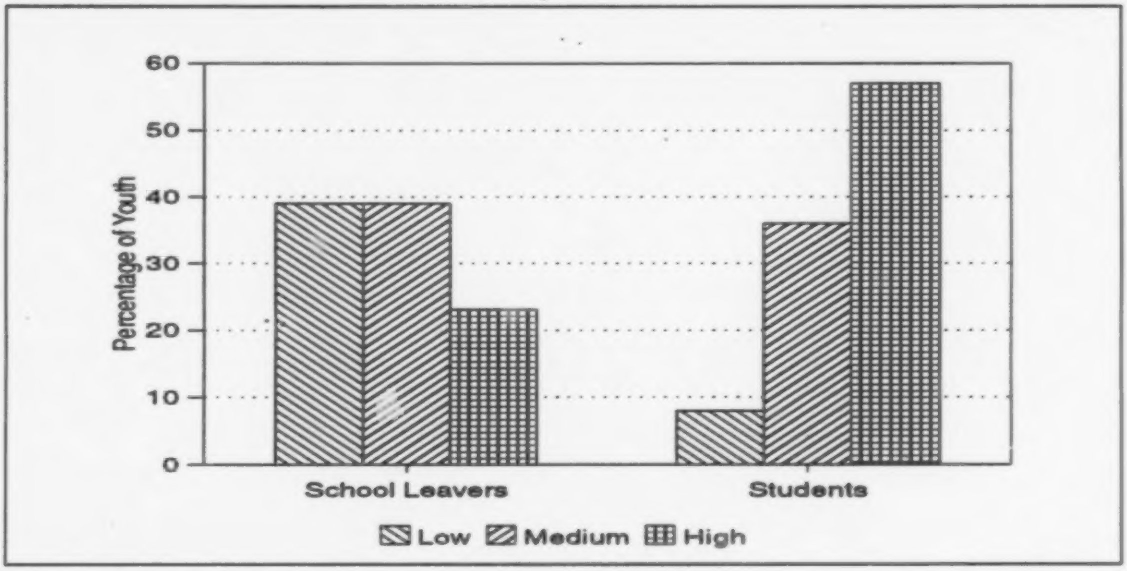
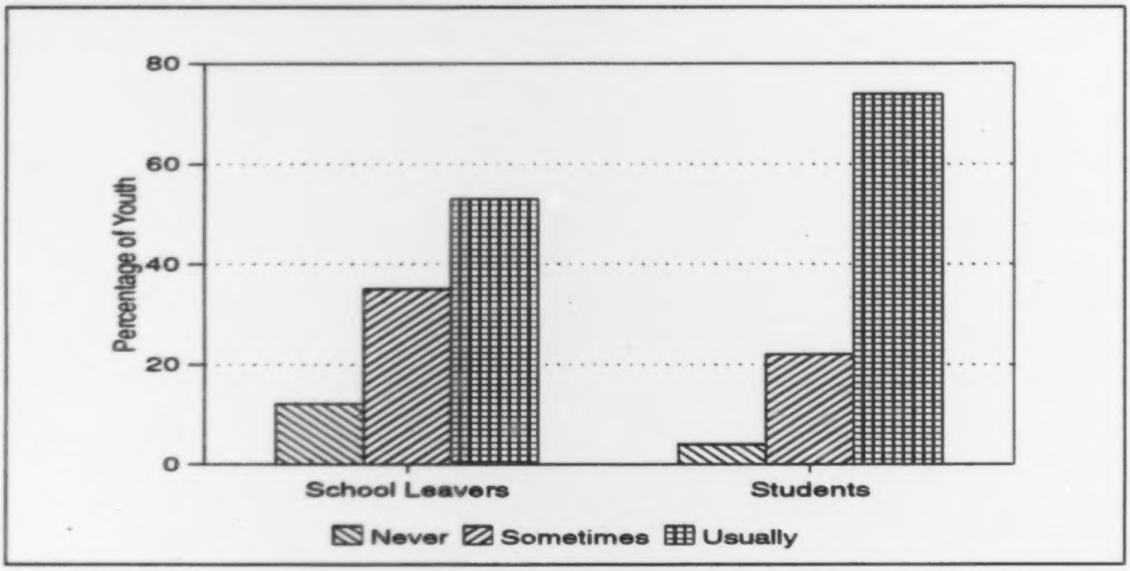


Figure 48 shows differences between the school leavers and students in the overall level of familial interaction. This figure is based on a summed score reflecting student ratings of statements measuring a number of dimensions of parent-child interaction including the following: time spent talking to parents; time spent doing something fun together; eating the evening meal together; parents' presence in the home during the evening; and participation in regular chores. As the figure indicates, only a small minority of the students had low scores for family interaction; the majority reported high scores. Conversely, the school leavers were least likely to have high familial interaction scores and over one-third had low scores.

Figure 49 Mother Monitors Education



Educational and Occupational Goals of Students and School Leavers

Figure 56 and Figure 57 provide a comparison of the educational and occupational goals of youth in the two samples. It is evident that youth in the student sample had much higher educational as well as occupational goals. None of the students had low educational expectations (i.e. high school graduation) nor did any hold aspirations for low status occupations. Nearly a third of the dropouts, however, had low educational and occupational goals. While the school leavers with lower goals might be considered to have been more realistic than those with high goals, this also suggests that many of the dropouts had low achievement motivation.

Summary and Conclusions

School leavers in the present sample shared many of the characteristics typically noted for dropouts within the existing literature. For example, the dropouts were more likely to come from families in which parents had low educational attainments, lower socioeconomic status, high rates of dependency on social assistance, and in which there were high rates of family dissolution. In terms of school experiences, most of the school leavers had been enrolled in a general level programme and many had been caught in a cycle of dropping out, re-entering school and subsequently dropping out again. In addition, many of the dropouts indicated that they had set low educational and occupational goals

Figure 50 Mother Attends School Programme for Parents

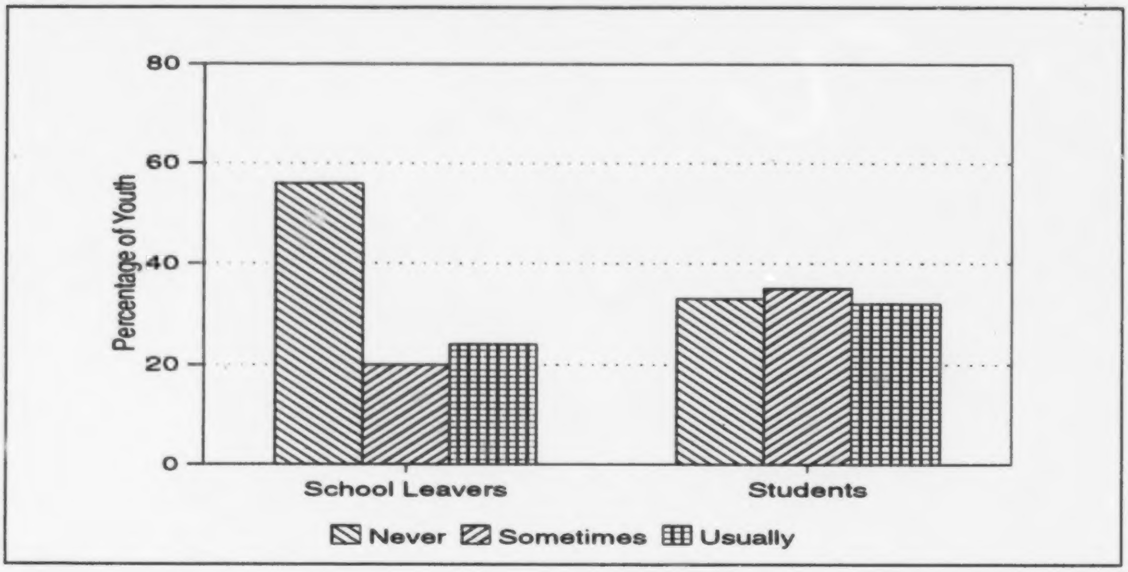
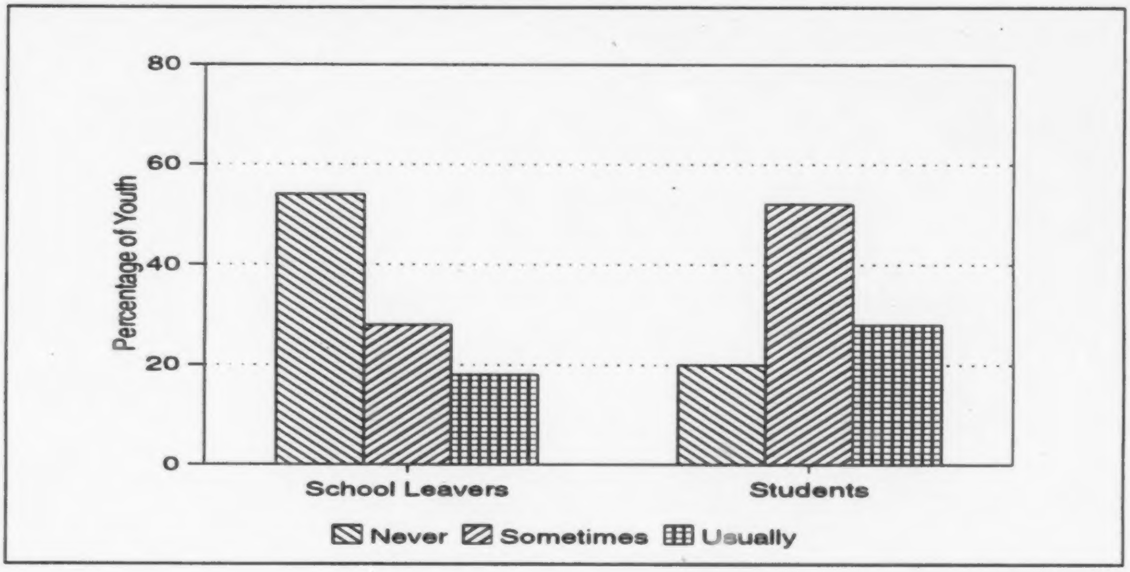


Figure 51 Mother Helped Choose Courses



for themselves, suggesting that they had little motivation to succeed in school and work.

Of particular interest were the patterns in the similarities and differences between the dropouts and students in regard to views of schooling, parental involvement in schooling and family interaction. It was evident that despite the fact that these young people had dropped out of school they had continued to retain a strong commitment to education and a firm belief in the value of education for securing work upon entry into the labour market. Comparison of the dropouts with students

Figure 52 Father Helps with Homework

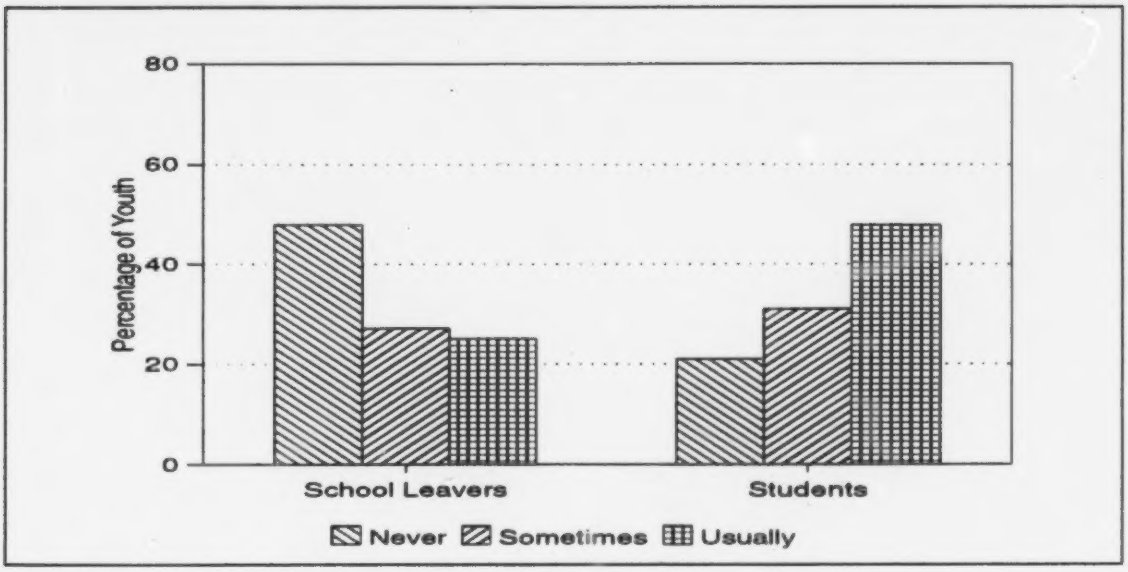
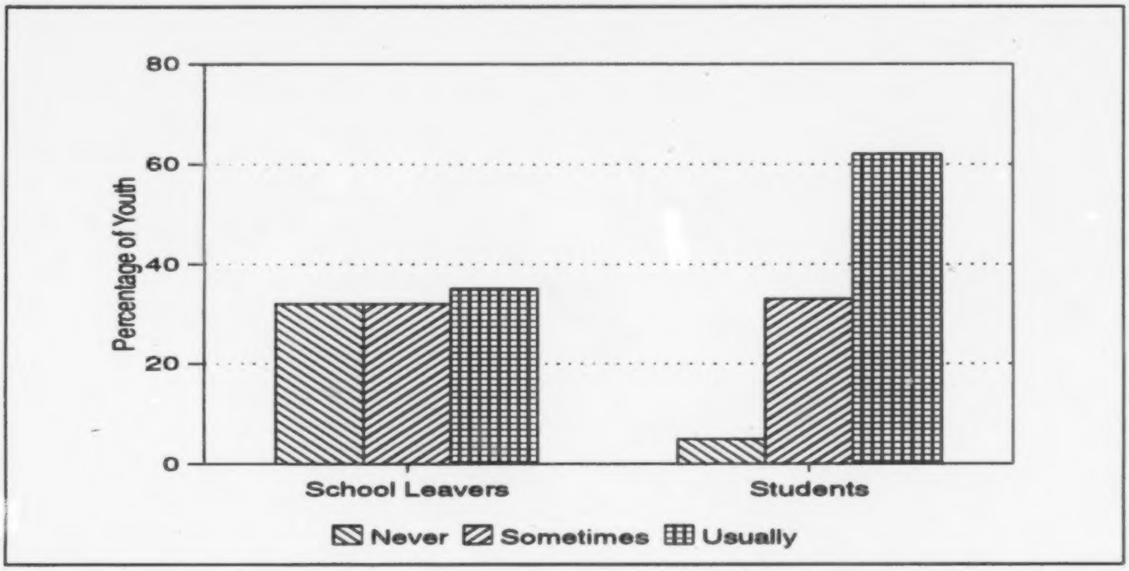


Figure 53 Father Knows How I'm Doing in School



indicated that the dropouts were similar to the students in this regard. In contrast, the dropouts were clearly more dissatisfied with various aspects of the schooling process than were in-school youth. The findings suggested that dropouts have greater difficulty in coping with aspects such as the repetitive nature of schooling and with the tendency of school personnel to treat students as children. Importantly though, the dropouts rated teachers very positively, suggesting that problems with schooling experienced by most did not stem from poor relations with teachers.

Figure 54 Father Goes to School Programmes for Parents

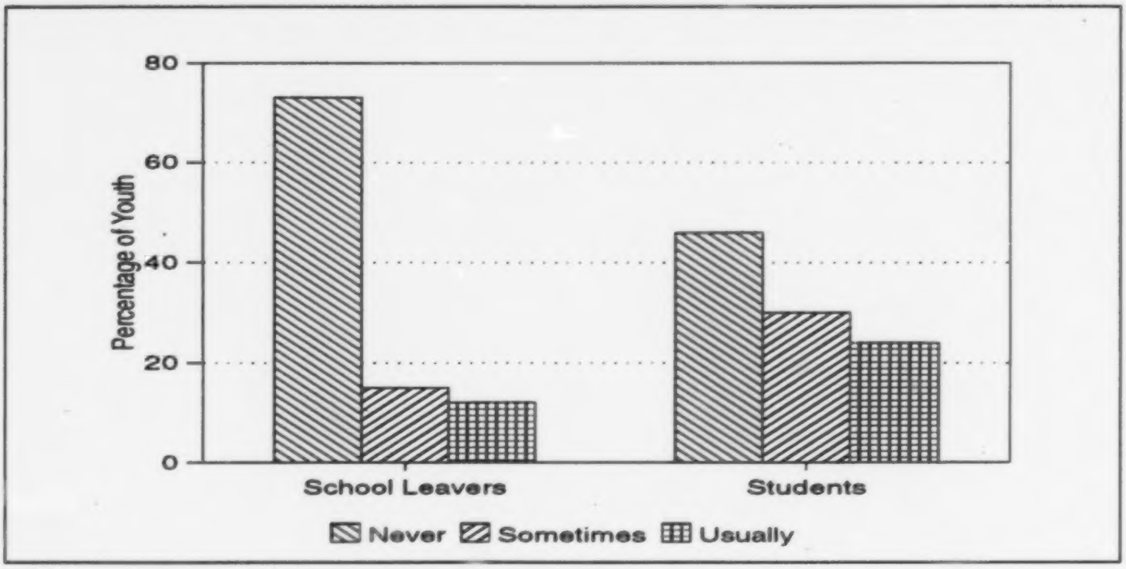
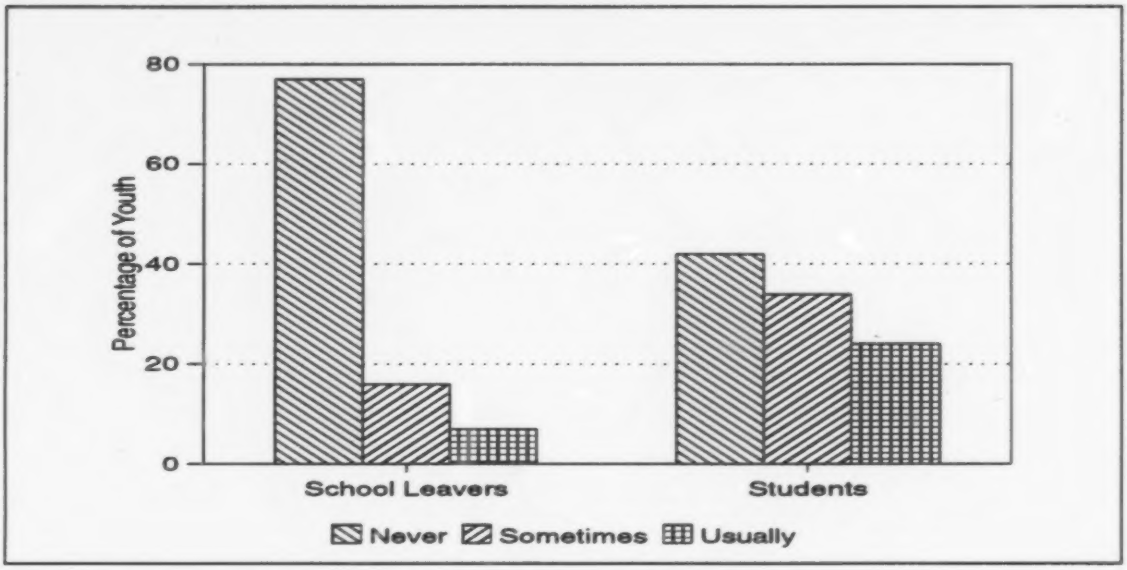


Figure 55 Father Helped Choose Courses



Given the positive views of teachers expressed by most of the school leavers, it is possible that teachers could play a stronger role in encouraging youth who have difficulties with schooling. When the findings of this report regarding parental involvement in schooling and familial interaction are considered, this role might be viewed as an essential factor for motivating at-risk youth to continue secondary school studies. The dropouts were substantially more likely than in-school youth to indicate that neither parent was involved in various aspects of their schooling. In particular, the vast majority of the dropouts' fathers were reported to have little or no involvement in school

Figure 56 *ed exp* Students and Dropouts

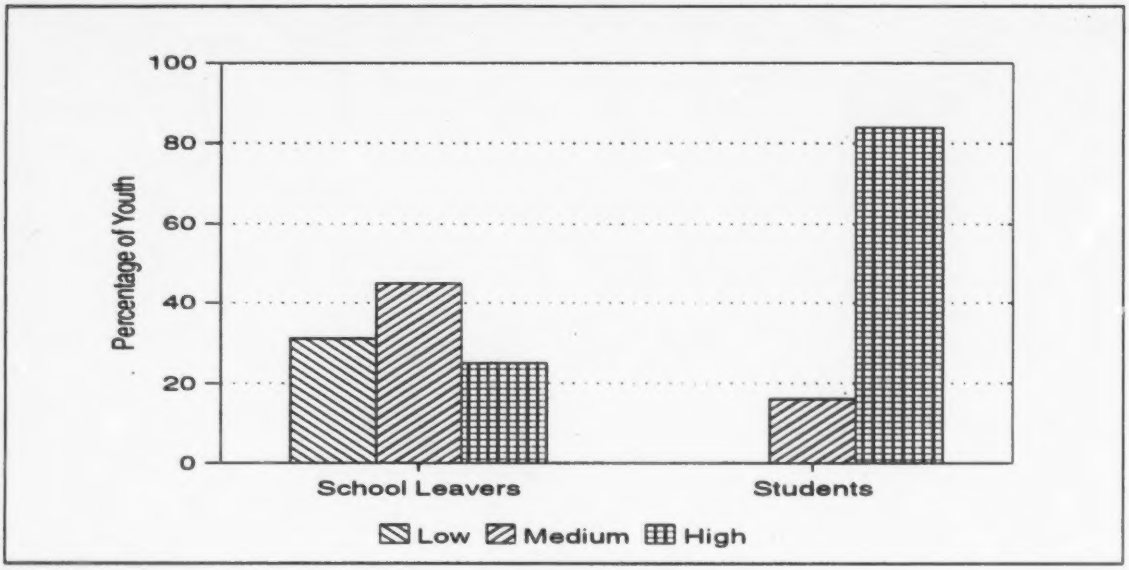
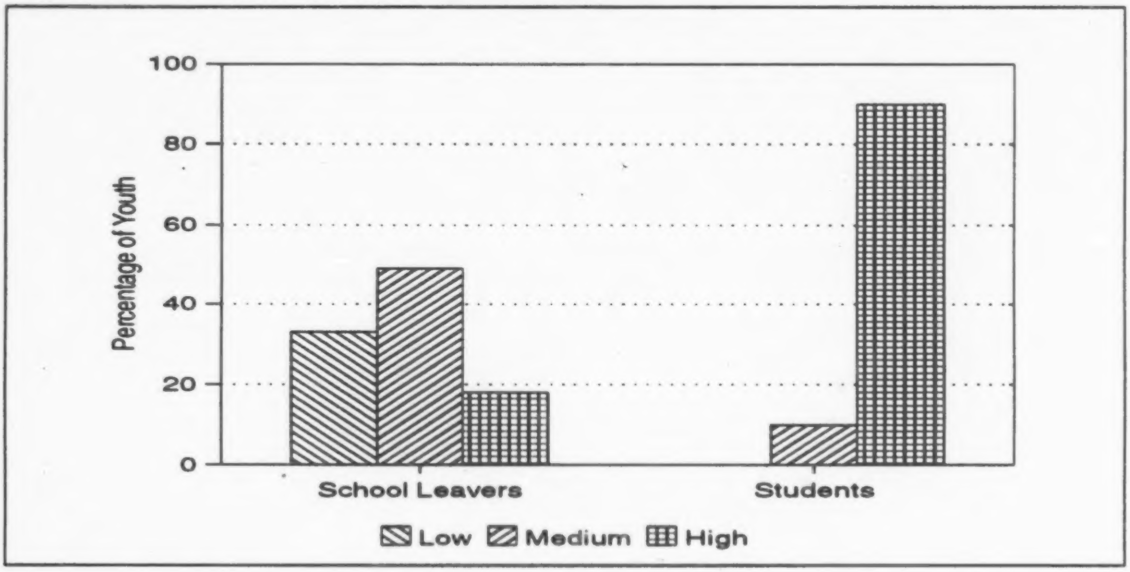


Figure 57 *occ asp* Dropouts and Students



programmes, course decisions and assistance with homework. It is possible that these young people would benefit if more attention was directed toward facilitating parental involvement with children's schooling. Parents with low educational attainments may have a poor understanding of how they may support their children's school performance and may feel that it is the school's responsibility to deal with such matters. The evidence clearly showed that many of the dropouts in this study lacked support and encouragement from parents. Efforts to stimulate collaboration between teachers and parents to provide support to youth-at-risk may prove fruitful in keeping them in school. The positive ratings of teachers by the dropouts suggests that teachers may have more influence over students than is commonly recognized.

A disturbing finding of this study is that students who stated that someone had encouraged them to drop out of school were most likely to cite school personnel in this regard. It is possible that many of these young people were disruptive in classes and school personnel may have felt that there were few other alternatives to deal with the situation. It is also clear that the long term solution for youth experiencing problems with schooling does not lie in encouraging them to leave school.

Science Students in the North

Introduction

Canada is facing a number of challenges to its future and the development of a skilled workforce is of great importance. An NSERC (1989) report cited a variety of studies which indicate that emerging technologies are bringing about changes in the occupational and skill structure of the labour force in industrialized nations. Many jobs that will be in demand in the 1990s will require employees with mathematics, science and computer skills. For high-technology intensive sectors such as computers, microelectronics, communications equipment, pharmaceuticals, robotics, aerospace and biotechnology, an adequate supply of research personnel is critical (NSERC, 1989; Science Council of Canada, 1986). There is evidence that women and girls, in addition to minorities, are generally uninvolved in these areas.

Adolescents' entry into science careers might best be understood by examining students with highly focused interests and abilities in science, particularly those who are close to a transition point where they are required to commit to a career pathway. In each secondary school in Canada there exists a unique group of students who can be readily identified by their present commitment to science. These young people represent a unique resource since they have the potential to become the scientists and technologists of the future, if they so choose. Are these youth heading in the direction of science career pathways? What factors are affecting their direction? In pursuing these questions it is important to acknowledge that the labour market in Canada is changing at a much faster pace than the educational and occupational aspirations of high school students (Science Council of Canada, 1982).

The Data

The data used in this section were collected in the summer of 1990 as part of a multi-panel, longitudinal study of science students in Northern Ontario. One hundred and seventy nine students from the Northern Summer School for Excellence in Science (NSSES) at Laurentian University participated in the study. The sample contained 104 females and 75 males. Each student had been nominated by their school principal and science teacher and then chosen by a selection committee to attend the summer school. Two main traits were required of the candidates: keenness and ability in mathematics and science and a positive attitude to learning. Students had to be enrolled in grade 11 or 12 and be graduating no sooner than January, 1991. Each high school in the northeast sector of Ontario was guaranteed at least one place in the programme regardless of the size of the institution.

During an evening session of the programme, students completed a self-administered questionnaire which required an average of 40-50 minutes to complete. The variables employed in the current analysis were taken from the larger questionnaire.

Results and Discussion

Family Background

A comparison of the educational attainments of subjects' mothers and fathers with those of the adult Canadian labour force indicated that the parents of students in the NSSES programme tended to be more highly educated than the general employed population. As Table 26 shows, fewer of subjects' mothers and fathers were in the lowest educational category and more of them had attained university degrees than the general adult labour force. The proportion of fathers who had attained a university degree was more than triple the corresponding proportion in the general population and the proportion of mothers in this category was more than double that for the general population.

Study participants were more likely than the average Canadian youth to come from dual income families. The majority (89%) of subjects' mothers were employed outside the home. Ninety per cent of the fathers were employed full-time, 5 per cent part-time and 5 per cent were unemployed. Parental occupations were coded using the occupational prestige scale developed by Blishen, Carroll and Moore (1987). Occupations were recoded into high, middle and low socioeconomic status (SES) using the mean and standard deviation of the scale. Youth in this sample were virtually all from middle or high social class backgrounds. A majority of the employed fathers were in occupations with high (39%) or medium (52%) SES. Thirty-two per cent of mothers were in high, and 58 per cent in medium status occupations.

Parental occupations were also classified as science or non-science occupations to provide an indication of the extent to which parental field of employment influenced occupational interests and aspirations. Few of the parents (mothers - 9%; fathers - 12%) were employed in science-related occupations, suggesting that parental employment in a science-related field was not a critical factor influencing high performance and interest in science for most students in the sample.

Analysis of questions dealing with family structure showed that the majority of the study participants (87%) came from intact families. In the remaining 13 per cent of cases, students came from homes in which one of the parents had died or the parents had divorced. In cases where the parents had divorced, the majority of students stated that they had maintained some contact with the absent parent (76%).

Perceived Parental Support and Expertise in Math and Science

Overall, parents of these students were very supportive and encouraging. As Table 27 shows, more than three-quarters of the sample perceived their parents to encourage them often or very often and expected them to obtain good grades in science and math, with a slight trend towards mothers being perceived as offering more support than fathers. Parental support was also evident in their reaction to their adolescents' occupational choices (see Table 27).

Students were also asked to rate the level of their mothers' and fathers' knowledge of science and math. Fathers were perceived to be more knowledgeable about science and math than were mothers, although according to most students, parents were not very knowledgeable about science nor good at math.

School Programme and Grades

An important criterion for selection into the NSSES programme was high performance in science courses. Thus, it was not surprising that 99 per cent of the students indicated that they were enrolled in an advanced or enriched high school programme. Most of the students (80%) stated that their grades for the past year had been mainly As and 71 per cent described their grades as among the best in their class.

Interest and Motivation in Science

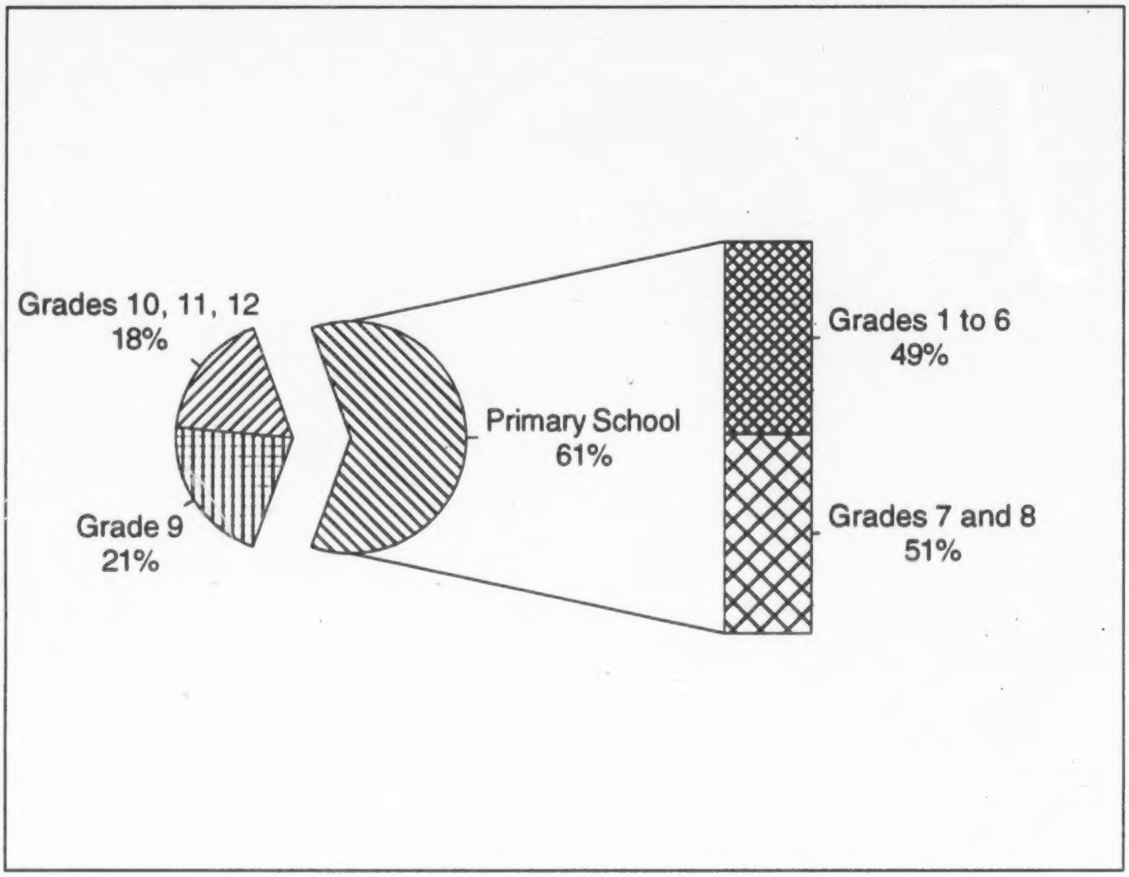
Most students in the sample reported being very interested in, and strongly motivated to do well in science. (Interest: strong - 37%; very strong - 55%; Motivation: strong - 26%; very strong - 67%). Nearly two-thirds of the students indicated that their interest in science had developed before entry to high school and very few stated that they had become interested in science during the high school years between grades 10 and 12 (see Figure 58).

Analysis of subjects' descriptions of how they became interested in science showed that the single most important influence was encouragement from other people, mentioned by 66 per cent of students. Teachers were perceived by the largest numbers to be a source of influence, followed by family members and friends. Approximately one quarter of the students also reported one or more of the following as inspiring their interest in science: experiencing science as an interesting subject at school (27%); performing well in science as a school subject (26%); or being involved in science fair experiments (26%).

Figure 59 and Figure 60 show the students' ratings of the influence of teachers and guidance counsellors with regard to courses and education in general. Nearly half of the students indicated that teachers and guidance counsellors had influenced their decisions about courses a great deal, and more than half of these students indicated that their teachers had influenced their educational decisions. Students were only slightly less likely to rate guidance counsellors as having a lot of influence on educational decisions. Comparison of students' ratings of teachers and guidance counsellors with the ratings of their parents (not shown) indicated that students perceived teachers as having about as much influence as parents and guidance counsellors on course decisions.

Thus, from the students' perspective, the two major factors that stimulated interest in science were encouragement and support from other people (most notably teachers) and positive experiences with the subject in school. The fact that a majority of these students reported becoming interested in science during their elementary years suggests that elementary teachers and schools have an important role to play in stimulating interest in this subject area. Students' ratings of teachers' and guidance counsellors' influence on decisions about courses and education also indicated that school personnel were as important as parents in educational decision-making.

Figure 58 Grade Level for Devp't Interest in Science



Students were also asked to rate their science teachers on a number of dimensions (see Figure 61). This group of students rated their science teachers very positively, with over three-quarters stating that their science teachers seemed to like them, encouraged them to work hard and got the best out of them. Science teachers were also perceived by the vast majority of this group to treat males and females in an egalitarian manner.

Occupational Pathways

Each student was asked to indicate the kind of occupation that he or she was hoping to eventually attain. Occupations were coded according to **The Canadian Classification Dictionary of Occupations** (1989). Using this classification structure in conjunction with **Enrolment in Universities in Canada, Statistics Canada (1988)**, the educational major fields developed by Grandy (1987) and the American National Science Foundation, occupations were further classified as quantitative science (occupations in natural sciences, engineering and mathematics), non-quantitative science (occupations in applied health) and non-science occupations (occupations in education, the humanities, management or administration and the social sciences).

Figure 59 Teachers/G.C. Influence Courses

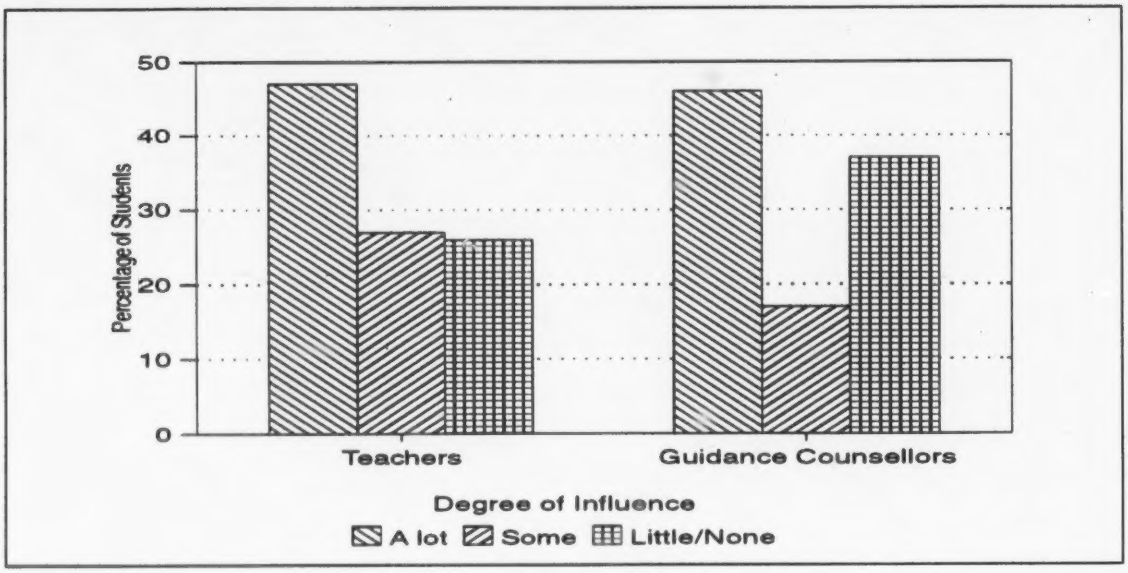
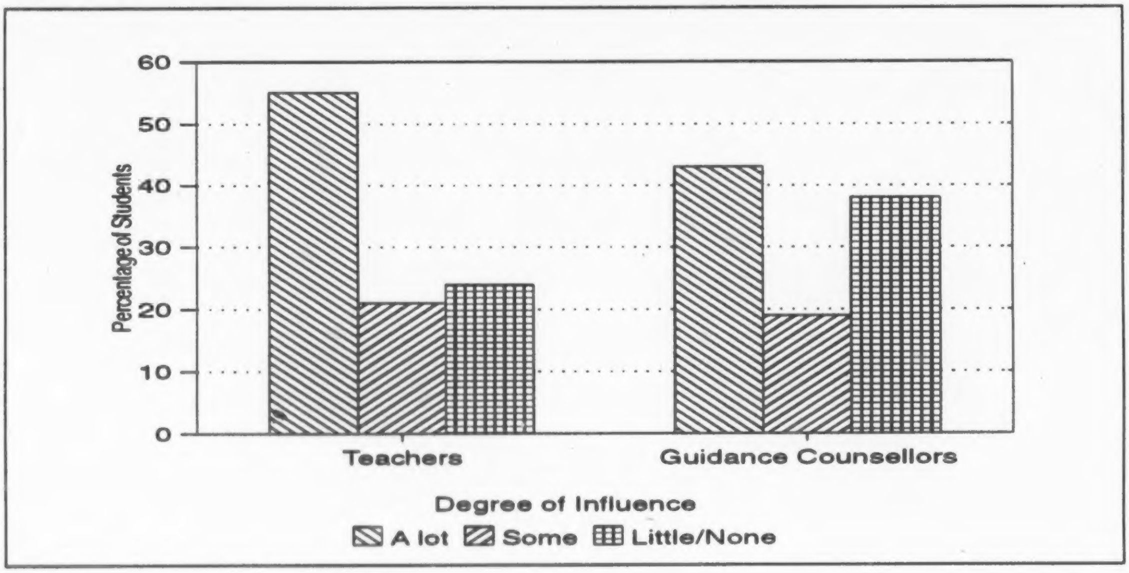
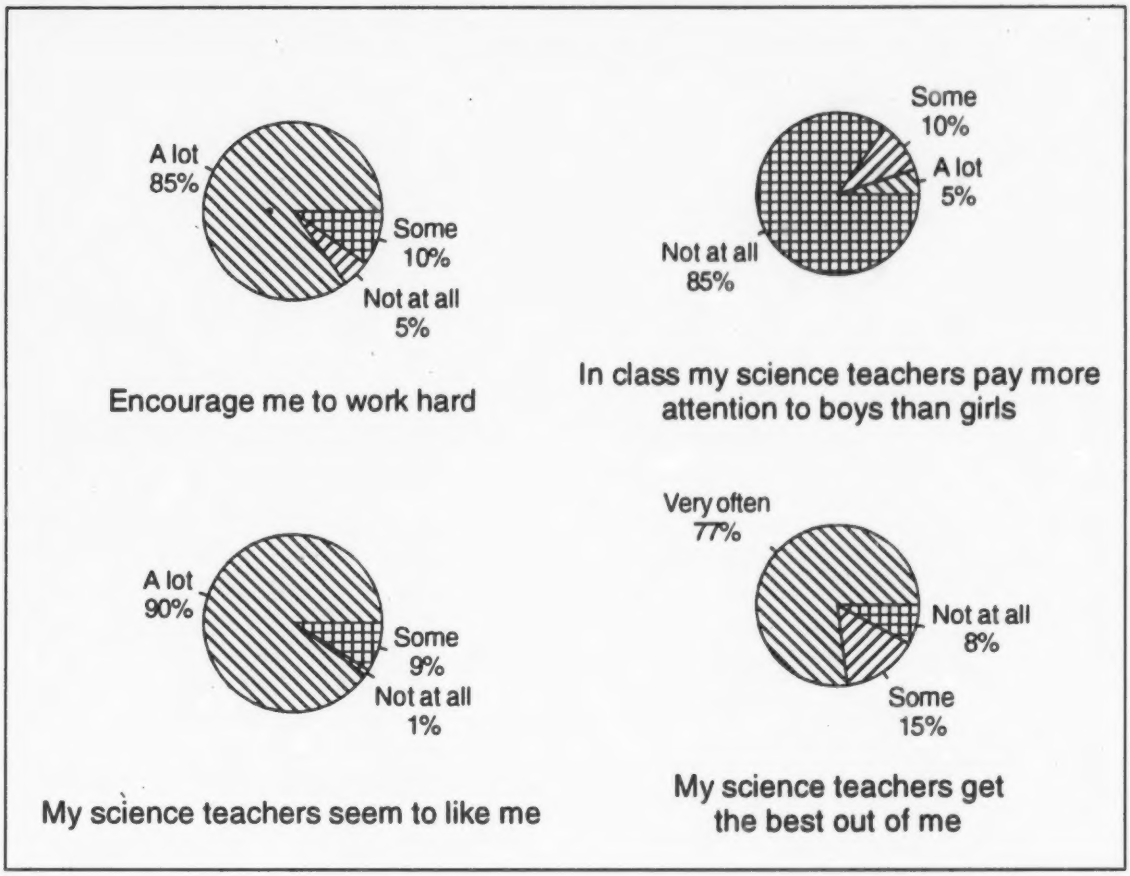


Figure 60 Teacher/G.C. Influence Educational Decisions



Cross-tabulation of student's aspirations by gender (Figure 62) indicated that females were significantly less likely than males to choose occupations in the quantitative sciences and more likely to choose occupations involving non-quantitative sciences as well as occupations not involving science (chi-square=15.35 df=2 p<.001). This finding is not surprising given that careers in the quantitative sciences traditionally have been dominated by males. Moreover, the small number of "elite" female science students aspiring to quantitative science careers suggests that the proportion of females in these occupations may not change dramatically in the coming years.

Figure 61 Students' Views of Science Teachers



Encourage me to work hard

In class my science teachers pay more attention to boys than girls

My science teachers seem to like me

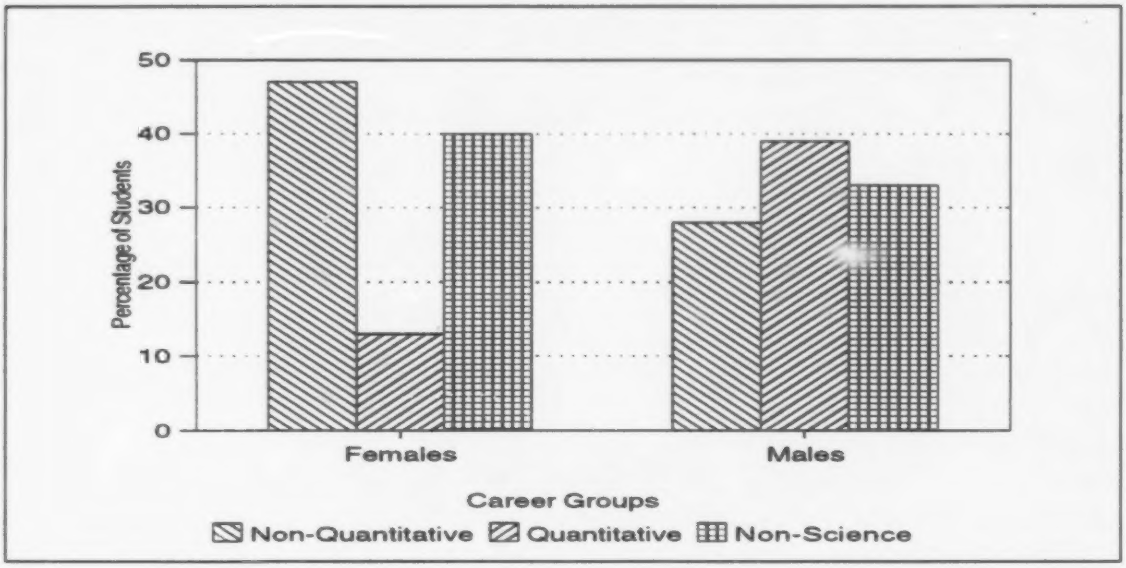
My science teachers get the best out of me

Students with aspirations for a science career differed from those with non-science career aspirations in certain respects (see Table 28). A larger proportion of students in the science group expressed a high degree of interest in science, had high scores on the science knowledge test, tended to participate more often in activities involving science and were more likely to indicate that their parents wanted them to become a scientist, doctor or engineer. Further analysis examining differences in the views of quantitative, non-quantitative and non-science students indicated that there were some differences between students with career aspirations in the quantitative sciences and students in the other two groups. Quantitative science students had more positive views of scientists as well as science and technology and were more likely than other students to indicate high levels of involvement in science activities.

Gender Differences in Science Attitudes, Knowledge and Activities

Cross-tabulations of all variables in the study with gender indicated significant differences between males and females in a number of areas (see Table 29). A larger proportion of males than females held positive views of scientists and science/technology. Males were also more likely to have higher scores on the science knowledge test and were more likely to engage in science activities. There were

Figure 62 Females and Males in Three Career Groups



no significant differences between males and females on a number of other variables such as parental support, perceptions of their parents' knowledge of math and science, and interest and motivation to succeed in science.

It seems probable that traditional gender role socialization accounts for differences in the attitudes and behaviours of male and female students in the sample. It is somewhat disturbing, however, that many female students who excel in science continue to possess negative views of the discipline and those who work in related fields. It seems reasonable to assume that there is a link between attitudes and behaviour, and that females who hold more negative views of science will be less inclined to participate in science activities. The data support this idea since similar proportions of female students had negative views of science/scientists, had low scores on the knowledge test and reported low levels of participation in science activities.

Summary and Conclusions

Knowledge of the characteristics of students who have demonstrated interest and ability in science is important because this knowledge can be of assistance in understanding how students come to pursue science education and careers. Analysis of the characteristics of this sample of high performing science students indicated that students had come from very advantaged backgrounds characterized by high socioeconomic status, high maternal employment, a high degree of marital stability and very high levels of support and encouragement from parents. The overall high levels of familial status, stability and support evident among the students in this sample are somewhat surprising given that students represented very diverse communities in Northeastern Ontario and also represented every school in this area of the province. The overwhelming evidence regarding the lack of variation in the sample in terms of these characteristics is somewhat disturbing because it suggests that students who do not come from similarly advantaged backgrounds may be less likely to succeed and excel in math and science. These findings suggest that efforts to increase the number of students pursuing education and careers in science should also consider how science achievement among students from other social and cultural backgrounds may be enhanced.

It is important to understand how students' interest in science and science related vocations develops. The influence of "significant others," most notably parents was found to be an important factor influencing the decision to pursue a science career. It was also evident that interest in science is promoted through an early and favourable exposure to science in an educational setting. Over half of the students in the present sample identified grades seven to nine as the period in which their interest in science had been most inspired in school. This also coincides with the age at which children's cognitive development progresses from a concrete towards a more abstract ability to reason. It is possible that cognitive developmental changes may be operating at this time to better prepare youth to digest and interpret subject matter in science. It might be argued that the development of abstract reasoning skills is necessary for success in performing scientific tasks. Consideration should be given to understanding the interaction between developmental changes and curriculum practices (i.e. method of instruction and presentation) occurring during the time frame in which most of the students appear to develop an interest in science and how these may operate to promote a greater interest in science.

In addition to promoting awareness among school personnel regarding the need to develop effective methods to inspire interest in science, it is also important to consider the role of parents as principle agents influencing the future educational and occupational pathways of their children. The number of youth choosing to participate in science might be increased if family and school systems worked cooperatively to realize this common objective by promoting interest in science, involvement in science-related activities and by supporting educational and occupational decisions leading to science careers. Results of this study clearly indicated that particular attention must be paid to encouraging the participation of females in science, especially in quantitative sciences. Greater effort must be aimed at halting the perpetuation of traditional sex-role stereotyping of occupations. Females will continue to be under-represented in the physical sciences as long as the vast majority continue to perceive occupations and education in this field as inappropriate to members of their gender.

Both school and family could be instrumental in encouraging youth to consider pursuing science careers by dispelling negative stereotypes about science and scientists and acquainting students to the various careers in science from which they may choose. If females could be persuaded to believe that education and occupations in science are as appropriate to them as they are to males, then females may be less likely to view science as unimportant to their future careers. In conjunction with the evidence regarding the important role of positive elementary and secondary school experiences with science and science teachers, results of these analyses clearly suggested that if the goal of securing skilled scientific and technological personnel in this country is to be realized, efforts to recruit science students should address the following issues: 1) dispelling negative stereotypes and perceptions of science and scientists; 2) emphasizing the positive aspects of quantitative and non-quantitative science careers for all students; 3) developing collaborative school-family strategies for encouraging and inspiring student interest in science at an early age; 4) removing barriers to participation in science activities and in the pursuit of careers in the sciences, particularly in the quantitative sciences for female students and for youth from lower socioeconomic backgrounds.

Transitions to Work: A Study of High School Students in Two Ontario Cities

The Data

The data analyzed for this section were gathered from Ontario students who participated in the first phase of a multi-panel, longitudinal study of high school graduates in three Canadian cities (Edmonton, Toronto and Sudbury). The Edmonton sample was excluded from the following analyses. A strategic sampling design, using the school as the primary sampling unit was employed, to collect data from grade 12 and 13 high school students in Toronto and Sudbury in the spring of 1985. In Toronto, 12 schools that provided a cross-section of different sizes and types in various areas of the city were chosen. A total of 754 students participated in the study. The sampling strategy used in Sudbury was similar; high schools that emphasized programme diversity were selected. Seven high schools allowed data collection and questionnaires were completed by 492 students. Thus, the sample contained 1246 Ontario students.

The data were collected during regular school hours in the students' classrooms. Members of the research team gave students a brief description of the project, explained that participation was voluntary and supervised the completion of the self-administered questionnaire. Students required 30 to 45 minutes to complete the questionnaire. In the present report, responses to questions relating to students perceptions of school and their educational and occupational aspirations were analyzed. Group differences based on gender, age, parental socioeconomic status, and visible minority group membership have been considered.

Background Characteristics of Students in the Sample

There were slightly more males than females in the sample and the majority of the students were 18 years old or less. However, nearly one-fifth of the sample was 20 years old or more. Of the students who indicated the racial origins of their parents, approximately one-fifth belonged to a visible minority group. It should be noted that a significant number of students did not answer this question. While most students were living with their parents in intact families, nearly one-quarter were from single parent families and most of these were mother-headed. Examination of the educational and occupational attainments of the students' parents showed that the sample contained a good distribution of youth from various social classes. Parents' occupations were classified according to the socioeconomic scale described by Blishen, Carroll and Moore (1987). The mean and standard deviation of the scale were used to classify occupations as high (more than one half standard deviation above the mean), middle (within one standard deviation of the mean), or low (more than one half standard deviation below the mean). Over half of the subjects' fathers and slightly less than half of the subjects' mothers had not graduated from high school. Reflecting trends within the Canadian population as a whole, mothers were less likely than fathers to have attended university and were more likely to have low status occupations.

Level of Study and Background Characteristics of Students

Subjects were classified as academic versus non-academic students based on the level of study at which they were taking most of their courses. The characteristics of students in these two groups were examined. As has been reported in previous research, students from lower socioeconomic backgrounds were more likely to be in a nonacademic stream (e.g. Radwanski, 1987). Statistically significant differences (based on chi-square tests) in level of study were found for all four of the parental background variables (i.e. mothers' and fathers' level of education and occupation). Figure B1 and Figure B2 demonstrate this trend and show that there were successive increases in the percentage of students in the academic stream as the level of parents' education and occupation increased. Statistical tests also indicated that there were differences in level of study based on gender (see Figure B3). These differences reflected the greater likelihood of males, older students and those belonging to a visible minority group to pursue studies in the non-academic stream. The finding that females in the study were slightly more likely than the males to be taking courses at the advanced level is reflective of general trends towards the reduction of gender inequalities at the secondary and undergraduate university level and of some indications that female students have a stronger commitment to education (e.g. the profile of young adults based on GSS data indicated that females were more likely than males to have plans for further study. Similarly, it was noted that females spent more time in full-time classes as compared with males). The greater likelihood of visible minority group students to be in a non-academic programme may be an indication of disadvantages experienced by such students within the school system. This finding is consistent with evidence that members of some visible minority groups are less likely to complete high school (Employment and Immigration, Canada, 1990).

Students' Educational and Occupational Aspirations

Overall, students in the sample had relatively high educational aspirations since less than one-fifth of the students expected to terminate their education upon graduation from high school (17%), 43 per cent expected to pursue post-secondary education at the college level and 40 per cent expected to go to university. A considerable proportion of the latter group indicated that they expected to pursue university studies at the graduate level (22%).

There were some differences in educational expectations based on gender, parental socioeconomic status, level of study and age. Figure B4 and Figure B5 show that pattern of relationships between students' educational expectations and parental attainments was the same for all four of the parental variables and that the percentage of students expecting to attend university increased along with the level of mothers' and fathers' education and occupation. The significant gender difference observed was caused by the higher educational aspirations of female students. Nearly half of the females stated that they expected to attend university compared with just over one-third of the males. There was a very strong relationship between level of study and educational expectations, with 15 per cent of non-academic and 66 per cent of academic students expecting to attend university. There is little doubt that this difference reflects student awareness of Ministry of Education guidelines regarding the intended post-secondary options for students at the various levels of study. Our data suggested, however, that a minority of non-academic students may have held unrealistic educational expectations since they had not pursued a course of study in high school that was intended to prepare them for study at the university level. The lower level of educational expectations noted for the older students was related to their greater numbers in the non-academic stream.

Examination of occupational aspirations showed that most students were hoping, and indeed expecting, to attain high level occupations (55%). While there were no differences based on gender or minority group membership, group differences based on all parental attainment variables were noted as was a significant group difference for level of study. The trends were the same as those noted for educational expectations, with higher SES and academic students having higher aspirations **(see Figure B6 and Figure B7). In Figure B6 the pattern is shown for mothers' education, however, the same results were found for each of the other parental attainment variables.**

Students' Perceptions of School and School Personnel

Students responded to a series of questions about their schooling experiences. Each of these questions was rated on a scale from 1 to 5 with a dichotomous Agree-Disagree format. For these analyses, the two responses at each pole were collapsed to produce three categories (agree, disagree, neutral). While about three-quarters of the students were convinced of the overall value of education in the **occupational attainment process (see Figure B8), they were less positive about other aspects of** schooling. Aspects of schooling that were evaluated negatively by many of the students dealt with the routine nature of schooling (i.e. school is the same day after day), being treated like children, and **an inability to rely on teachers when they need help (Figure B9). While a slight majority of students** (53%) felt that classes were not a complete waste of time, 47 per cent of the students were inclined to view classes as a waste of time. Students responses to a statement about completion of homework showed that a majority of students did not consistently complete their homework assignments. Computation of Pearson correlation coefficients showed that responses to all of the above statements are significantly correlated. Thus, students who are less convinced of the value of schooling, also tend to be less satisfied with various aspects of schooling and less likely to complete their homework assignments. Despite the negative evaluations of some aspects of the high school experience, Figure 41 shows that the majority of these high school seniors stated that they had enjoyed their time in high school (70%).

Students were quite evenly divided in their perceptions of the job related skills and knowledge provided by schools and the career advice they get from teachers and guidance counsellors. Approximately one third of the students felt that schools do not provide the skills that employers want and young people have trouble finding work because they get inadequate advice from teachers **assignments. Despite the negative evaluations of some aspects of the high school experience, Figure B9 shows that the majority of these high school seniors stated that they had enjoyed their time in high school (70%).**

Analyses were performed to determine whether there were any group differences or interactions between the background characteristics of the students in relation to their attitudes regarding their schooling experiences. These analyses showed that there were no consistent group differences across the various aspects of schooling considered in the study. The major differences which emerged reflected the greater likelihood of academic and higher social class students to agree on the value of education for their future work careers, while working class students were more likely to disagree that they were treated like children and to report that they usually completed their homework. Only isolated interaction effects emerged between the background characteristics indicating that no single subgroup of students was either more or less positive about their schooling experience overall.

Student Views About What Schools Should be Teaching and the Best Job Search Advice from Teachers

Students were asked to respond to two open-ended questions: 1) In your opinion, what is the most important thing that high schools should be teaching their students? 2) What is the best advice, if any, that you have received from teachers and guidance counsellors about finding a job after you leave school? With regard to the first question, Table B1 shows that the category mentioned by the largest number of students (more than one-third) was social and life skills. Job skills were thought to be most important by one quarter of the sample, followed by the acquisition of knowledge (one-fifth of the students). It is clear that from the student's perspective, academic skills and specific knowledge are not considered to be the most important aspects of the high school education.

Analysis indicated some group differences in response to the first question. Females were more likely than males to believe that schools should be teaching self motivation and development as well as social and life skills. On the other hand, male students were more likely to believe that schools should teach specific knowledge. There were also some consistent differences based on the parental background variables. Youth whose fathers and mothers had attained lower levels of education or occupation were less likely to state that thinking and theory as well as preparation for post-secondary education were important aspects of the high school education. Conversely, youth whose parents had higher education or higher status occupations were less likely to state that schools should be teaching specific knowledge and job-related skills. These differences were also evident for level of study. As might be expected, non-academic students were more likely to state that schools should be teaching specific knowledge and job-related skills and less likely to state that schools should teach preparation for post-secondary education.

The major differences emerging from analysis of responses to the second question were related to the likelihood of students to report whether they had received any job search advice from teachers. Academic students and those from higher socioeconomic backgrounds were more likely to state that they had not received any job related advice; and non-academic students and those from lower socioeconomic backgrounds were more likely to state that they had received specific job search skills, resumé writing and/or interview advice.

Summary and Conclusions

The results of the analysis of data from a substantial number of Ontario students clearly showed that youth whose parents had attained lower levels of education and lower status occupations were more likely to be in a non-academic stream. Additionally, in part because of the relationship between lower socioeconomic status and membership in a visible minority group, students who belonged to a visible minority group were more likely to pursue secondary school studies in a non-academic stream. While these findings are not new, they reinforce the view that efforts should not only be directed towards changing school structures, but also towards encouraging more working class students to take advanced level courses and informing them of the merits of doing so. It is possible that the current initiatives to delay streaming may be insufficient to fundamentally alter schooling processes which have tended not to address the needs of more disadvantaged youth.

This study indicates that compared with their higher social class counterparts, working class youth in non-academic streams had quite different views regarding further education and the types of occupations they would pursue in the labour market. Working class students in this sample were more likely to aspire to lower status occupations and to believe that the central role of the school should be to teach specific knowledge and job skills. Such views may place these students in a contrary position from that held by most teachers and other school personnel. In the current economic climate emphasizing global competition, it has been argued that schools should be moving toward an educational curricula which provides broad analytic communication and writing skills and away from teaching specialized vocational skills (Radwanski, 1987). If students have a poor understanding of how they will benefit from the development of more academically oriented skills, it is unlikely that they will actively apply themselves to their acquisition.

Many students reported a dissatisfaction with specific aspects of the high school experience. Indications that substantial numbers of students felt that most classes were monotonous, repetitive and a waste of time, that they were treated like children, and that they could not rely on teachers when they needed help, is of particular concern. All of these factors may reduce students' achievement motivation and hinder the effectiveness of their secondary school education.

Career Awareness and Knowledge of the Labour Market

During their high school years, adolescents make decisions that profoundly affect their future careers. For example, students make decisions regarding their high school courses and programmes, post-secondary educational options and occupational choices. Research on adolescent career decision-making has demonstrated the complexity of this process and the difficulty young people face in attempting to select and pursue alternative career pathways.

Studies have shown that concepts about careers develop quite early, narrow considerably during high school, are sex-stereotypical and are only partially based on accurate information (DeFleur, 1966; DeFleur & Menke, 1975; Dorr & Lesser, 1980; Garrett, Ein & Tremaine, 1977; Gottfredson, 1981; Grotevant & Durett, 1980; Nelson, 1963). Young people move toward certain educational and occupational fields and ignore others, often failing to consider many options. It is apparent that before an occupation or career can be considered, a person must have some awareness (information or knowledge) of that option in order to facilitate a realistic decision. While awareness in the form of information or knowledge is a recognised component in career development and decision-making theories, it has been virtually neglected as an area of research. Thus, an understanding of adolescents' awareness and knowledge of the labour market and of the manner in which this knowledge is transmitted to young people is a critical step in addressing the issue of their responsiveness to changing labour market patterns and conditions. This project addressed the following specific questions:

1 What do young people know about the current and future labour market?

2 What are the channels of transmission of information about the occupational world?
3 How do knowledge of the labour market and channels of transmission vary by grade, gender, socioeconomic status, language and level of study?

The Data

The data were collected in May of 1988 from Francophone and Anglophone students attending schools in Sudbury, Ontario. Students completed a self-administered questionnaire in their classrooms during regular school hours. The sample consisted of 626 students in grades eight (n=138), ten (n=235) and twelve (n=252) and contained equivalent proportions of females and males (52% and 48% respectively). The percentages of Anglophones (64%) and Francophones (36%) in the sample closely approximated their proportions in the Sudbury region population (62% and 35% respectively) based on 1986 census data. Advanced level students constituted 65 per cent of the sample while the remaining 35 per cent of the participants were taking courses at the general level. In this report, findings relating to students in the specialization years are described. Where relevant, analyses indicating differences between students in the transition years (grade 8) and students in the specialization years (grades 10 and 12) are also presented.

Parental Background and Family Structure

The majority of students' fathers were employed at full-time jobs (87%), while very few held part-time jobs (2%). The remainder were retired, disabled, or unemployed. Figure B10 shows the distribution of father's and mother's occupations in terms of socioeconomic status. Students were most likely to come from families with medium or low socioeconomic status.

Approximately two thirds of the sample (64%) came from intact families and resided with their parents at the time of the study. An additional nine per cent of the students stated that their parents had not separated or divorced but they did not reside with their parents. The majority of students whose parents were separated or divorced lived with their mothers (57%). A smaller proportion lived with their fathers (17%) and the remainder lived in foster homes, group homes, or on their own. Further analysis of family structure indicated that Anglophone and general level students within the study sample were significantly more likely than francophone and advanced level students to live in single-parent or reconstituted families. The continued influence of traditional values associated with the Roman Catholic religion on Franco-Ontarian families may explain the greater likelihood for francophone students to be living in intact families. The reasons that general level students were not as likely to live in intact families are less clear. It is possible that problems at home have a negative impact on children's school choices (Youniss, 1988), and increase the likelihood that students from disrupted family situations will take courses at the general level.

Family Socioeconomic Status and Level of Courses

A number of previous studies have documented the significant relationship between social class and streaming (Breton, 1972; Porter, Porter and Blishen, 1982; Radwanski, 1987). This relationship was also evident within our data. Analysis of the background characteristics of students in the general versus advanced stream revealed a significant relationship between family socioeconomic status (SES) and level of study. As Figure B11 indicates, students in the general stream were most likely to have come from families with low SES. Conversely, students from families with high socioeconomic status were most likely to be in an advanced level programme (see Figure B12).

Educational and Occupational Aspirations

Student's expectations and aspirations were analyzed to examine group differences on the basis of gender, SES, family structure, language (French or English), grade and level of study.

Educational expectations

Significant group differences were found for all variables with the exception of language. The results indicated that female students, students from higher SES backgrounds, those in intact families and those taking courses at the advanced level were most likely to report expectations to go to university. Conversely, students expecting to attend community college were most likely to come from non-intact families, low SES families, and those enrolled in the general stream. The proportion of students expecting to attend university declined as grade level increased, with approximately three quarters of grade eight students anticipating a university education but slightly under half of the grade 12 students doing so. This trend was accompanied by corresponding increases in the number of students expecting to attend community college as grade level increased.

Occupational Aspirations

A similar pattern of results was found for occupational aspirations as was noted above for educational aspirations except that family structure and gender differences were not evident. As Table B2 shows, results from analysis of variance indicated that the level of students' occupational aspirations increased with increases in parental SES. Students in the advanced stream had higher occupational aspirations than did general level students. Additionally, corresponding to the lower educational expectations of older students, were successive decreases in the level of occupational aspirations as grade level increased.

Access to Information About Courses, Education and Occupational Interests

Students rated the amount of information they received from various sources on the kinds of courses and level of education required for various occupations and about their occupational interests. From a total of 14 possible sources, guidance counsellors, teachers, mothers and fathers (in order of importance) were rated by students as providing the greatest amounts of information(see Figure B13). However, a greater proportion of students in the sample reported that they received no information from teachers, mothers and fathers than the proportion reporting that they received a lot of information.

As a whole, students were less likely to indicate that they had received information about their own occupational interests than they had received general information about courses and education levels. Figure B14 compares results of an analysis on amount of information received by students in grades 8, 10 and 12. As grade level increased, there were successive increases in the proportion of students receiving a lot of information. Thus, our analyses suggested that as students approach high school graduation, they receive more occupational information from educators.

Trends in information received from family were quite different from those regarding information obtained from the school (see Figure B15). A greater proportion of grade 12 students as compared with grade 8 students indicated that they received no career information from families. These results suggested that older students in our sample relied more heavily on the school than on the home for labour market information.

The relationship between access to information and family SES as well as level of study was examined for grade 10 and 12 students. Differences between students in the advanced and general levels in the amount of information obtained from fathers and guidance counsellors were found. General level students reported that they received less information than did advanced level students. It was also found that mothers' and fathers' educational and occupational attainments were significantly related to the amount of information received by students. A similar pattern of results was found for all three information variables (i.e information about occupational interests, about courses and about the level of education required to attain various occupations) and indicated that as the level of mothers' and fathers' education and SES rose, the perceived level of information increased. The pattern of effects of the parental background variables on access to information suggested that parents who have had more successful school and work careers give their children more information about the link between schooling and work than do parents who have been less successful.

The relationship between access to career information at home and at school was also considered. New variables reflecting a composite of the three information variables for mother and father were computed in order to examine whether there was any relationship between the amount of information received by students at home and at school. The results of analyses on these variables showed that there was a significant relationship between the amount of information received from parents and that received from teachers and guidance counsellors. Students who said they received some or a lot of information from their mothers and fathers reported that they received similar amounts of information from school sources (see Figure B15). Thus, it appeared that students who benefited from the receipt of greater amounts of information at home were also more likely to receive career information from school sources. Unfortunately, the converse was also true and students who did not receive career information at home were less likely to obtain it from school personnel.

Knowledge of the Labour Market

As evident in responses to various questions about the labour market, students demonstrated overall low levels of knowledge in regard to the educational requirements of occupations, technological change and job opportunities. Analysis of trends in knowledge levels indicated that knowledge levels increased slightly with grade (see Figure B16 and Figure B17). As shown in Figure B17, despite increases in the percentage of students who passed a "quiz" on knowledge of technological change in the labour market as grade increased, the majority of grade 12 students still failed the quiz (i.e. gave fewer than 50% of correct responses).

Students generally had a better understanding of the educational requirements of occupations than they did of the nature and impact of technological change on the labour market. Students were asked to answer a question designed to test their knowledge of the educational requirements of common occupations, for example, those for becoming an elementary school teacher. This occupation was selected for inclusion in the knowledge test because all students have had direct contact with individuals in this occupation and therefore could be expected to have at least some understanding of the job. Our analysis showed that most grade 10 and 12 students understood that it was necessary to take at least some advanced level courses (84%) and to attend university in order to become a teacher. It was also evident, however, that general level students, those from lower socioeconomic backgrounds, and francophone students were slightly more likely to underestimate the educational requirements of this occupation. Almost one third of general level students, one quarter of francophone students and one fifth of low SES students did not realise that to become a teacher it would be necessary to take at least some advanced level courses in high school. These students indicated that an individual could take all courses at the general level and be successful in obtaining a job as an elementary school teacher. Figure B18 and Figure B19 show the characteristics of students who underestimated the type of education required in order to become an elementary schoolteacher. A similar pattern of results was obtained for ratings of other occupations. It was consistently found that advanced level students, those from higher SES families and anglophones were more likely to feel that a greater number of advanced level courses and a higher level of education was necessary in order to obtain various occupations.

Conclusions

Results of this study were consistent with findings from previous research indicating that disadvantages relating to low socioeconomic status in the family of origin tend to persist into the high school years. Analysis of data from grade ten and twelve students in our sample indicated that there was a relationship between socioeconomic origins and the students' level of study. Students from families with lower socioeconomic status were more likely to be enrolled in a general programme while very few high SES students were enrolled in a general level programme. Within the study sample, there was also a relationship between the level of students' occupational aspirations and their SES and level of study. High aspirations were most evident among students from high SES backgrounds and advanced programmes. It was also found that aspirations were lower among students whose parents had divorced. This relationship may be linked to the association between family structure and level of study (i.e. students from non-intact families were more likely to be enrolled in a general programme). Findings from this study also suggested that the level of students aspirations declines with increases in age. This trend, referred to in previous research as the "cooling out" of students' aspirations, is related to students' SES and level of study, as noted above.

With regard to access to career information, results suggested that many students in the specialization years relied heavily on the school for information about the labour market. Older students were more likely to report that they received little information from the family and a lot of information from the school. There was a relationship between the amount of information students received from the family and the amount they received from the school. Students who received no career information at home were less likely to receive such information from school personnel.

Results of the study indicated that, overall, students in the specialization years knew relatively little about labour market trends and conditions. While levels of knowledge about the labour market increased with age, the majority of grade 12 students failed a quiz on knowledge of technological change and labour market trends. Students were more knowledgeable about the educational requirements of various occupations than they were about labour market trends; however, a substantial number of grade 12 students (one third) had misconceptions about the type and level of education required to attain various occupations. Students from low SES backgrounds, general level students and Francophone students were overrepresented among those who had a poor understanding of the educational requirements of occupations.

Overall Conclusions: Regional Databases

Analysis of Regional Databases

Five different regional data sets were analyzed to provide information about young adult learners: data from a project which focused on students' awareness and knowledge of the labour market; data from a large study of grade 12 and 13 students; data from a study of the learning problems and school experiences of youth in foster care; data from a study of dropouts which examined their views of school and parental involvement in schooling; and finally, data from a study of high performing science students which focused on the development of interest in science and group differences based on expressed career path decisions. These studies differed in terms of limitations stemming from the number of participants and the central variables in each. Nevertheless, they are of value because all data were collected from Ontario youth (with the exception of some of the youth in foster care), three of the data sets represent specialized subgroups of youth (youth in foster care, dropouts and science students) and the others assist in the construction of qualitative profiles of in-school youth in the specialization years. While the foci of the studies were somewhat different, attempts were made to utilize common variables wherever possible allowing for some comparisons. Following is a section offering a comparison of the various data sets and finally a series of observations regarding key findings from the various databases.

Comparison of Regional Databases

A consistent finding in all of the databases regarded the relationship between family background and schooling experiences. Youth who came from more disadvantaged families (i.e. whose parents had low educational and occupational attainments) were also less likely to be high achievers in high school. This was evident, for example, in findings from every data set indicating that higher socioeconomic origins were associated with taking courses at the advanced level while youth whose parents had low socioeconomic status were most likely to follow a general level programme in high school. This pattern was clearly apparent in the samples representing "at-risk" youth (youth in care and dropouts) in which nearly all of the participants had been enrolled in general or basic programmes. In dramatic contrast, all of the science students, who were virtually all from middle or high social class families, were in an advanced or enriched programme (with the exception of one student). Findings from the studies of science students and dropouts also provided an indication of the relationship between family dynamics and school experiences. The science students reported that high levels of parental support and encouragement in regard to school performance. On the other hand, the parents of dropouts (and fathers in particular) were much less likely to monitor their son's or daughter's school performance and many were completely uninvolved with their child's schooling.

The educational and occupational goals of youth in all samples also provided a basis for comparison. Results confirmed trends noted in previous research that youth whose parents have attained higher levels of education and middle or high status occupations have been much more likely to set higher goals for themselves as compared with their peers from lower socioeconomic backgrounds. Comparisons of youth in the study of science students and the groups of "at-risk" youth provide striking evidence regarding the relationship between family origins and goal setting. The science students had all set high goals for themselves, with virtually all indicating that they intended to pursue a university education, two-thirds expressing intentions to pursue high status occupations in the sciences and the remaining students indicating a desire to enter middle or high status non-science professions. In contrast, many of the dropouts and youth in care had set low goals for themselves. While it may be considered that these young people are being realistic by acknowledging that they are not likely to achieve high levels of education nor to attain high status occupations, this may also reflect low achievement motivation which has contributed to problems with schooling.

Variables reflecting young people's views of teachers and schooling also allowed for comparisons between different samples and yielded some surprising findings. Comparison of the dropouts with students from the Two-Cities study indicated that, like in-school youth, dropouts had retained a strong belief in the value of education in the attainment process. In addition, the majority of the dropouts rated teachers positively on many aspects. Perhaps most notable were the similar proportions of dropouts and high performing science students who responded affirmatively to questions tapping the extent to which teachers expect good work from them (63% for dropouts and 77% for science students). Comparisons of dropouts and grade 12 and 13 students from the Two-Cities study on views of schooling also indicated some differences between dropouts and students. Despite rather high levels of dissatisfaction among students with various aspects of the schooling process, most dropouts were even more dissatisfied by comparison. The dropouts seemed to have particular difficulty in coping with aspects of schooling such as its repetitive nature, being treated like a child and dealing with boredom in classes.

Observations on the Regional Databases

Career Awareness

Young adult learners appear to rely increasingly on the school for information about occupations and labour market conditions. Yet at the same time, their knowledge of the labour market was very limited. This calls into question the nature of the information being conveyed to students. Is it possible that students and school personnel have focused almost exclusively on accessing post-secondary programmes and have invested little effort in understanding the career pathway options that might be fulfilled?

Grade 12 students were most likely to indicate that they received little or no career information from their families. Family was not seen to be a source of labour market/career information. This raises the issue of how the family can be brought into the process, particularly in the light of the evidence from science students regarding their high levels of family support.

Youth in Care

Being in the care of the Child Welfare system clearly influenced schooling experiences and the majority of the youth in care cited negative effects. Just over half of the youth stated that elementary school had been a negative experience and one third felt this way about secondary school. Only a small proportion of the youth stated that they had not experienced problems in their primary and secondary years. Many of the youth had endured numerous changes of placements and schools and these frequently coincided. This suggests that, where possible, efforts should be made to provide stability in the school setting when foster care placements are being changed in order to minimize the degree of disruption in the young people's lives. To do so, it may be necessary to have stronger communication links between school and social services agencies involved with these young people.

In commenting on measures that should be taken to assist with learning problems, the youth stressed the need for specific programmes to provide extra help or tutoring to address the unique learning needs of youth in care. Given the high dropout rate among the youth in care and evidence of functional illiteracy among one third of the youth, such programmes may be essential. A second area in which youth in care need support is that of counselling and support services to determine how personal circumstances interfere with learning. Schools may play a role in supporting and encouraging such youth who do not have the benefit of supportive families, and who must cope with problems stemming from abuse, neglect, family disruption etc. in addition to the usual stresses associated with adolescence.

Grade 12 and 13 Students

The results of the analysis of data from a substantial number of Ontario students clearly showed that youth whose parents had attained lower levels of education and lower status occupations were more likely to be in a nonacademic stream. Additionally, in part because of the relationship between lower socioeconomic status and membership in a visible minority group, students who belonged to a visible minority group were more likely to pursue secondary school studies in a non-academic stream. While these findings are not new, they reinforce the view that efforts should not only be directed towards changing school structures, but also towards encouraging more working class students with regard to their ability to take advanced level courses and of informing them of the merits of doing so. It is possible that the current initiatives to delay streaming may be insufficient to fundamentally alter schooling processes which have tended not to address the needs of more disadvantaged youth.The role of the family needs to be more carefully examined in terms of new partnerships with schools.

Working class youth in non-academic streams had quite different views regarding further education and the types of occupations they would pursue in the labour market when compared with their higher social class counterparts. They were more likely to aspire to lower status occupations and to believe that the central role of the school should be to teach specific knowledge and job skills. Such views may place these students in a contrary position from that held by most teachers and other school personnel. In the current economic climate emphasizing global competition, it has been argued that schools should be moving toward an educational curriculum which provides broad analytic, communication, and writing skills and away from exclusive teaching of specialized vocational skills (Radwanski, 1987). If students have a poor understanding of how they will benefit from development of more academically oriented skills, it is unlikely that they will actively apply themselves to their acquisition of such skills.

Many students reported a dissatisfaction with specific aspects of the high school experience. Of particular concern are indications that substantial numbers of students felt that most classes are a waste of time, had a sense of being treated as a child, that schooling was perceived as a monotonous, repetitive experience, and that they could not rely on teachers when they needed help. All of these factors may reduce students' achievement motivation and hinder the effectiveness of the secondary school education. If such views are in fact reflecting the current "management style" of secondary school classrooms, there is a need to review the assumptions on which such practices are predicated. These data may reflect a growing disjuncture between the students and the teachers/administrators responsible for delivering appropriate and acceptable services to students.

Comparison of Dropouts and In-school Youth

Most of the dropouts rated their teachers very positively. Therefore, it is possible that teachers have more influence over school leavers than they realise and could play a stronger role in encouraging such youth to cope with difficulties both at school and in their out-of-school lives. Dropouts reported low rates of parental involvement with schooling. Parents with low educational attainments may have less understanding of how they may support their children's school performance and may feel that it is the school's responsibility to deal with such matters. Efforts to stimulate collaboration between teachers and parents to provide support to youth-at-risk may prove fruitful in keeping them in school.

Findings from dropouts indicated that they were similar to in-school youth in terms of commitment to education and belief in the value of education in the labour market attainment process. In contrast, however, the dropouts displayed higher levels of dissatisfaction with specific aspects of schooling (e.g. the repetitive nature of schooling, authoritarian treatment, boredom in classes). It is possible that youth who lack family support, encouragement and involvement in schooling may have fewer resources to cope with problematic aspects of schooling. This raises the issue of how such youth, many of whom had clearly not rejected the idea of schooling, may be supported in order to keep them in school until graduation.

Science Students

The overall high levels of familial status, stability and support evident among the students in this sample are somewhat surprising given that students represented very diverse communities in Northeastern Ontario and also represented every school in that area of the province. The overwhelming evidence regarding the lack of variation in the sample in terms of these characteristics is somewhat disturbing because it suggests that students who do not come from similarly advantaged backgrounds may be less likely to succeed and excel in math and science. These findings suggest that efforts to increase the number of students pursuing education and careers in science should also consider how science achievement among students from other social and cultural backgrounds may be enhanced.

It is important to understand how students' interest in science and science related vocations develops. The influence of "significant others," most notably parents, was found to be a key factor influencing the decision to pursue a science career. It was also evident that interest in science is promoted through an early and favourable exposure to science in an educational setting. Over half of the students in the present sample identified grades seven to nine as the period in which their interest in science had been most inspired in school. This also coincides with the age at which children's cognitive development progresses from a concrete towards a more abstract ability to reason. It is possible that cognitive developmental changes may be operating at this time to better prepare youth to digest and interpret subject matter in science. It might be argued that the development of abstract reasoning skills is necessary for success in performing scientific tasks. Consideration should be given to understanding the interaction between developmental changes and curriculum practices (i.e. method of instruction and presentation) occurring during the time frame in which most of the students appear to develop an interest in science, and how these may operate to promote a greater interest in science.

In addition to promoting awareness among school personnel regarding the need to develop effective methods to inspire interest in science, it is also important to consider the role of parents as principle agents influencing the future educational and occupational pathways of their children. The number of youth choosing to participate in science might be increased if family and school systems worked cooperatively to realize this common objective by promoting interest in science involvement in science-related activities and by supporting educational and occupational decisions leading to science careers.

Results of this study clearly indicate that particular attention must be paid to encouraging the participation of females in science, especially in quantitative science. Greater effort must be aimed at halting the perpetuation of traditional sex-typing of occupations. Females will continue to be under-represented in physical science as long as the vast majority continue to perceive occupations and education in this field as inappropriate to members of their gender.

Both school and family could be instrumental in encouraging youth to consider pursuing science careers by dispelling negative stereotypes about science and scientists and acquainting students to the various careers in science from which they may choose. If females could be persuaded to believe that education and occupations in science are as appropriate to them as they are to males, then females may be less likely to view science as unimportant to their future career. In conjunction with the evidence regarding the important role of positive elementary and secondary school experiences with science and science teachers, results of these analyses clearly suggested that if the goal of securing skilled scientific and technological personnel in this country is to be realized, efforts to recruit science students should address the following issues: 1) dispelling negative stereotypes and perceptions of science and scientists; 2) emphasizing the positive aspects of quantitative and non-quantitative science careers for all students; 3) developing collaborative school-family strategies for encouraging and inspiring student interest in science at an early age; 4) removing barriers to participation in science activities and in the pursuit of careers in the sciences, particularly in the quantitative sciences for female students and for youth from lower socioeconomic backgrounds.

APPENDIX A — TABLES

Table 1 Regional Characteristics: Total and two age-cohorts

CHARACTERISTIC N	TOTAL 9023400	15-18 559750	12-14 379300
RESIDENCE			
Ottawa-Hull	7.0	6.5	6.3
Toronto	37.7	35.6	34.8
Hamilton, Kitchener, St. Catharines, Niagara	13.3	13.8	13.4
REST of Ontario	42.0	44.1	45.5
BIRTHPLACE			
Ontario	66.4	81.1	84.6
Rest of Canada	12.4	5.7	5.7
Abroad	23.2	13.2	9.7
MOBILITY in past 5 years			
Same Dwelling	55.5	63.9	61.0
Moved in Census Division	24.3	19.9	22.1
Moved in Province	14.2	11.2	12.2
Moved from another Province	3.4	2.4	2.7
Moved from outside Canada	2.6	2.6	1.9

All figures are percentages.

Source: Statscan: P.U.M.F. 1986 Census

Table 2 Family Background: Adolescents and Young Adults

	ONTARIO			CANADA
CHARACTERISTIC	TOTAL	15-18	12-14	15-18
N	9023400	559750	379300	985650
SEX				
Male	50.9	51.0	51.5	50.9
Female	49.1	49.0	48.5	49.1
FAMILY TYPE				
Child in Husb-Wife Fam	29.3	78.9	83.4	76.6
Child w.Male Lone Parent	.9	3.2	2.4	3.4
Child w.Female Lone Parent	4.2	12.2	12.4	12.8
Other	65.6	5.7	1.8	7.2
FAMILY-SIZE				
Alone	13.9	4.7	1.5	5.7
2-person	21.9	5.0	3.7	5.9
3-person	18.4	17.4	13.5	18.0
4-person	27.0	37.2	42.2	34.3
5-person	12.6	23.1	26.0	22.3
6+person	6.1	12.6	13.1	13.8
MAJOR SOURCE OF FAMILY INCOME				
Wages and Salaries	79.5	84.2	82.8	76.1
Self-employment	5.5	6.1	6.8	7.6
Government Transfer	9.5	6.7	8.2	13.5
Other	5.5	3.0	2.2	2.8
TOTAL FAMILY INCOME				
Under $25,000	24.7	20.9	23.6	31.5
$25-$49,999	44.2	42.2	44.7	41.6
$50-$74,999	21.5	25.6	23.3	19.0
$75,000+	9.6	11.3	8.4	7.8
Median	38906	42543	39746	35730
HOME OWNERSHIP,VALUE,ROOMS				
Owned	71.2	78.7	78.3	76.9
Median $ Value	96067	98547	98989	69247
Median number of rooms	7.0	7.6	7.6	7.2

All figures are percentages

Source: Statscan: P.U.M.F. 1986 Census

Table 3 Socio-cultural Background: Adolescents and Young Adults

	ONTARIO			CANADA
CHARACTERISTIC	TOTAL	15-18	12-14	15-18
N	9023400	559750	379300	985650
ETHNIC ORIGIN				
SINGLE				
British	32.4	28.4	28.8	21.4
French	6.0	5.0	4.8	31.6
Other European	20.3	17.8	16.0	10.2
Non-European	7.7	8.2	8.6	7.7
MULTIPLE				
Various British	11.5	10.4	10.3	5.9
British-French	5.7	7.3	7.2	5.0
Other	16.7	22.9	24.3	18.4
VISIBLE MINORITY	8.7	10.2	10.0	5.4
CANADIAN-BORN	76.8	87.5	90.5	93.2
CITIZENSHIP				
Canadian by birth	76.9	87.5	90.9	93.4
Canadian by Naturalization	16.7	7.1	5.3	4.1
Non-Canadian	6.3	5.4	4.2	2.5
MOTHER TONGUE				
English Only	76.2	82.1	83.2	57.8
French Only	4.7	4.2	3.4	32.1
English and French	1.1	1.3	1.6	1.5
Other	18.0	12.4	11.8	8.6
HOME LANGUAGE				
English Only	83.3	85.3	86.0	60.0
French Only	3.2	3.2	2.9	31.6
English and French	1.4	1.4	1.6	1.7
Other	12.2	10.1	9.5	6.7
OFFICIAL LANGUAGE ABILITY				
English Only	86.0	80.3	81.1	55.6
French Only	.7	.3	.4	22.5
English and French	11.8	19.2	18.3	21.9
Neither	1.6	.2	.1	.1
IMMIGRANTS	2082050	69850	35850	64950
YEAR OF IMMIGRATION				
Before 1976	78.7	56.9	41.0	47.5
1976-1980	10.9	23.8	35.8	30.5
1980-1986	10.4	19.3	23.2	22.0
AGE AT IMMIGRATION				
0-4	13.4	41.2	56.8	35.4
5-9	10.0	32.6	28.3	33.2
10-14	7.3	19.0	14.9	24.3
15-19	10.7	7.2		7.1
20 and later	58.6			

All figures are percentages
Source: Statscan: P.U.M.F. 1986 Census

Table 4 Education Labour-force Activity

	ONTARIO		CANADA
CHARACTERISTIC	TOTAL	15-18	15-18
N (15 years and over)	7150400	559750	985650
HIGHEST LEVEL OF SCHOOLING			
Less than Gr. 5	2.9	.2	.8
Grades 5-8	11.6	3.6	7.8
Grades 9-13	28.4	79.3	67.1
High School Graduate	13.3	14.0	13.6
Post Secondary	43.8	2.9	10.7
HIGHEST GRADE OF ELEMENTARY-SECONDARY			
Less than Gr. 5	2.9	.2	.8
Grades 5-8	13.0	3.7	8.0
Grade 9	5.9	15.4	16.3
Grade 10	12.9	26.7	24.1
Grade 11	10.6	24.4	24.2
Grade 12	30.5	23.0	21.9
Grade 13	24.2	6.6	4.8
YEARS OF UNIVERSITY EDUCATION			
None	63.7	99.3	97.6
Some	36.3	.7	2.4
YEARS OF NON-UNIVERSITY EDUCATION			
None	56.5	97.8	92.2
Some	43.5	2.2	7.8
TRADES & OTHER NON-UNIV.CERTIFICATE			
None	77.5	99.4	97.6
Some	22.5	.6	2.4
HIGHEST DEGREE			
None	46.3	83.9	77.1
Secondary School	21.2	15.4	20.5
Higher	32.5	.7	2.4
LABOUR-FORCE ACTIVITY			
Employed	64.3	38.7	26.3
Unemployed	4.6	7.4	9.0
Previously in L.F.	25.0	16.1	12.9
Never in L.F.	5.9	37.6	51.7

Table 5

Regional Characteristics

	Total	Sex		Median Family Income		Aboriginal		Mother Tongue		Immigration Status		Visible Minority		Dropout
	15-18	Male	Female	Below	Above	Yes	No	English French	Other	Canada	Foreign Born	Non Visible	Visible Minority	*
N	559750	285550	274200	240450	286450	12900	546850	490300	69450	518700	41050	502850	56900	193300
RESIDENCE														
Ottawa	6.5	6.4	6.7	4.5	8.2	7.0	6.5	6.9	3.7	6.7	4.9	6.6	6.2	6.2
Toronto	35.6	35.4	35.7	33.0	37.8	17.8	36.0	31.4	64.7	32.8	69.9	31.5	71.5	34.2
Haml.Kit.St.Cath.Niag.	13.8	14.0	13.6	14.0	13.9	9.3	13.9	13.8	13.7	14.1	10.2	14.4	8.8	14.1
Rest of Ontario	44.1	44.2	44.0	48.5	40.1	65.9	43.6	47.8	17.9	46.4	15.0	47.6	13.4	45.5
BIRTHPLACE														
Ontario	81.1	81.0	81.3	80.9	82.0	92.6	80.9	84.9	54.1	87.5	0.0	87.0	29.5	83.2
Rest of Canada	5.7	5.7	6.2	4.6	6.9	6.3	6.0	7.1	2.0	6.5	0.0	6.3	3.6	5.9
Abroad	13.2	13.3	12.5	14.5	11.1	1.2	13.1	8.0	43.9	6.0	100.0	6.7	66.9	11.9
MOBILITY STATUS														
Same Dwelling	63.9	64.8	62.9	61.1	70.0	53.9	64.1	64.6	58.6	66.3	33.6	65.8	47.0	62.2
Moved in Census Division	19.9	19.6	20.2	22.6	16.0	27.1	19.7	19.8	20.6	19.3	26.4	19.2	25.4	21.7
Moved in Province	11.2	10.8	11.6	10.7	10.0	14.7	11.1	11.6	8.4	11.3	9.4	12.2	10.5	11.8
Moved from another Province	2.4	2.2	2.6	2.2	2.3	3.5	2.4	2.6	1.4	2.4	2.6	2.4	2.4	2.2
Moved from Outside Canada	2.6	2.6	2.7	3.4	1.5	.8	2.7	1.5	10.9	.6	28.0	1.3	14.7	2.0

All figures are percentages

Source: Statscan, 1986 Census P.U.M.F.

* See Definitions of Canadian-born and Drop-out, in text.

Table 6

Family Background Characteristics

	Total	Sex		Med Fam Income		Aboriginal		Mother Tongue		Imm. Status		Visible Minority		Dropout
	15-18	Male	Female	Below	Above	Yes	No	Eng/Fr	Other	Cndian*	F. Born	NonVis	VisMin	*
N	559750	285550	274200	240450	286450	12900	546850	490300	69450	518700	41050	502850	56900	193300
SEX														
Male	50.9	-	-	50.4	51.8	50.4	51.0	50.9	51.8	51.0	50.9	51.1	50.6	53.8
Female	49.1	-	-	49.6	48.2	49.6	49.0	49.1	48.2	49.0	49.1	48.9	49.4	46.2
FAMILY TYPE														
Child in H.W. Family	78.9	80.3	77.4	67.6	95.5	66.3	79.2	77.9	85.9	79.5	70.8	79.6	72.4	78.6
Child with M. Lone-Parent	3.2	3.7	2.7	5.3	1.8	4.8	3.2	3.5	1.6	3.3	3.0	3.2	3.2	2.9
Child with F. Lone-Parent	12.2	11.5	13.0	25.1	2.6	17.1	12.1	12.9	7.5	11.9	16.5	11.7	17.1	11.9
Other	5.7	4.5	6.8	2.2	-	12.0	5.5	5.7	5.1	5.3	9.8	5.3	7.3	6.6
FAMILY-SIZE														
Alone	4.7	4.3	5.1	-	-	9.5	4.6	4.7	4.6	4.4	8.8	4.5	6.7	5.6
2-person	5.0	4.5	5.6	10.4	1.0	6.3	5.0	5.4	2.4	5.0	5.3	5.1	4.3	4.8
3-person	17.4	18.0	16.8	25.0	12.6	17.5	17.4	18.1	12.5	17.7	13.6	18.0	12.0	16.4
4-person	37.2	37.4	37.1	33.9	43.4	24.6	37.5	37.8	33.4	37.9	28.3	37.7	32.6	36.7
5-person	23.1	23.0	23.1	19.7	27.9	19.8	23.1	22.6	26.0	22.9	24.7	22.7	25.9	23.9
6+person	12.6	12.9	12.3	10.9	15.2	22.3	12.3	11.4	21.1	12.1	19.4	12.0	18.6	12.5
MAJOR SOURCE OF FAMILY INCOME														
Wages and Salaries	84.2	84.1	84.2	74.9	91.9	74.6	84.4	84.5	81.6	84.3	82.3	84.1	85.0	86.4
Self-Employment	6.1	6.2	6.0	6.6	5.7	3.5	6.1	6.0	6.8	6.2	4.6	6.2	4.8	6.4
Government Transfer	6.7	6.5	6.9	14.5	.1	19.7	6.4	6.6	7.8	6.7	7.5	6.8	6.1	4.8
Other	3.0	2.3	2.9	4.0	2.2	2.2	3.1	2.9	3.9	2.9	5.6	2.9	4.2	2.5
TOTAL FAMILY INCOME														
Under $25,000	20.9	19.9	21.7	-	-	37.7	20.4	20.1	25.7	19.9	32.1	20.1	26.7	18.9
$25-$49,999	42.2	42.4	41.8	-	-	36.9	42.2	41.4	47.4	42.0	44.0	42.3	41.3	41.4
$50-$74,999	25.6	26.1	25.0	-	-	18.0	25.8	26.3	20.7	26.3	16.7	26.0	22.3	27.7
$75,000+	11.3	11.6	11.5	-	-	7.5	11.6	12.2	6.3	11.7	7.2	11.7	9.6	11.9
Median $	42543	42874	41919	-	-	32413	43701	43353	37269	43161	36370	48629	38556	43918
HOME OWNERSHIP, VALUE, ROOMS														
Owned	78.7	79.6	77.6	65.8	91.6	58.3	79.1	78.5	79.5	80.4	56.2	80.3	64.5	79.5
Median $ Value	98547	98531	98561	81034	113333	76928	98784	96264	118118	98286	103746	96966	118750	98557
Median number of rooms	7.6	7.7	7.6	6.9	8.2	6.9	7.6	7.6	7.5	7.6	6.6	7.6	6.9	7.7

All figures are percentages / Source: Statscan, 1986 Census, P.U.M.F. / * See Definitions of Canadian-born and Drop-out, in text.

Table 7 Socio-cultural Background Characteristics

	Total	Sex		Median Fam Income		Aboriginal		Mother Tongue		Immigration Status		Visible Minority		Dropout
	15-18	Male	Female	Below	Above	Yes	No	Eng/Fr	Other	Canadian*	For Born	NonVis	Vis Min	*
N	559750	285550	274200	240450	286450	12900	546850	490300	69450	518700	41050	502850	569001	93300
ETHNIC ORIGIN-SINGLE														
British	28.4	28.6	28.3	28.3	27.9	-	29.1	32.3	1.4	29.6	14.3	31.3	3.5	28.0
French	5.0	4.9	5.2	5.4	4.5	-	5.1	5.7	.9	5.4	.1	5.6	.1	3.8
Other European	17.8	18.1	17.4	19.2	17.4	-	18.2	11.2	63.6	17.7	18.1	19.5	2.4	18.2
Non-European	8.2	7.8	9.8	9.5	6.6	-	7.7	5.8	24.7	4.6	53.2	1.0	71.1	6.5
MULTIPLE														
Various British	10.4	10.1	10.7	9.3	11.5	-	10.6	11.8	-	11.1	1.7	11.6	-	11.5
British-French	7.3	7.4	7.2	7.7	6.8	-	7.5	8.3	.3	7.8	1.1	8.1	.3	8.1
Other	22.9	22.9	22.9	20.5	25.3	100.0	21.7	24.9	9.1	23.8	11.5	22.9	22.5	23.9
VISIBLE MINORITY	10.2	10.1	10.2	11.5	9.5	-	10.4	8.3	27.6	5.8	65.3	-	-	8.2
CANADIAN-BORN	87.5	86.8	87.5	85.5	89.0	98.8	86.9	91.6	56.2	94.1	-	93.3	33.0	89.0
CITIZENSHIP														
Canadian by birthright	87.5	87.3	87.8	85.8	89.4	98.8	87.3	91.9	56.4	94.4	-	93.7	33.0	89.3
Canadian by Naturalization	7.1	7.4	6.7	7.5	6.8	.4	7.2	4.8	23.2	3.8	48.7	3.3	40.4	5.9
Non-Canadian	5.4	5.3	5.6	6.7	3.9	.8	5.5	3.3	20.3	1.8	51.3	3.0	26.6	4.8
MOTHER TONGUE														
English Only	82.1	82.0	82.2	78.9	84.8	89.1	81.9	-	-	84.8	48.2	84.1	64.1	83.8
French Only	4.2	4.4	4.1	4.3	4.1	1.9	4.3	-	-	4.5	.6	4.6	1.1	3.0
English and French	1.3	1.0	1.5	1.5	.9	1.9	1.3	-	-	1.3	.9	1.3	1.2	1.2
Other	12.4	12.6	12.2	15.3	10.2	7.0	12.5	-	-	9.4	50.3	10.0	33.6	12.0
HOME LANGUAGE														
English Only	85.3	85.2	85.5	81.8	88.0	93.0	85.2	92.9	31.9	87.6	56.4	87.0	70.3	87.7
French Only	3.2	3.3	3.2	3.3	3.2	.4	3.3	3.7	-	3.5	.2	3.6	.4	2.0
English and French	1.4	1.2	1.6	1.7	1.1	.8	1.4	1.5	.1	1.4	.9	1.3	1.6	1.1
Other	10.1	10.3	9.7	13.2	7.7	5.8	10.1	1.9	68.0	7.5	42.5	8.1	27.7	9.2
OFFICIAL LANGUAGE ABILITY														
English Only	80.3	84.6	75.9	81.7	78.8	85.3	80.2	80.4	79.7	79.9	85.9	80.2	81.2	81.5
French Only	.3	.3	.2	.3	.2	-	.3	.3	.1	.3	.2	.3	.2	.1
English and French	19.2	14.9	23.7	17.6	21.0	14.7	19.3	19.3	18.6	19.8	11.6	19.4	17.6	18.3
Neither	.2	.2	.2	.4	-	-	.2	-	1.5	-	2.3	.1	1.1	.1
IMMIGRANTS	69850	36350	33500	34200	30400	150	69700	39600	30250	28800	41050	31700	38150	20750
YEAR OF IMMIGRATION														
Before 1976	56.9	58.3	55.4	50.6	68.6	33.3	57.0	65.7	45.5	-	26.7	67.4	48.2	62.4
1976-1980	23.8	23.6	23.9	25.6	21.4	33.3	23.7	21.6	26.6	-	40.4	19.8	27.3	22.5
1981-1986	19.3	18.1	20.8	23.9	10.0	33.3	19.3	12.8	27.9	-	32.9	13.1	24.6	15.1
AGE AT IMMIGRATION														
0-4	41.2	42.5	39.9	35.2	51.8	-	41.3	48.5	31.7	-	-	55.0	29.8	42.7
5-9	32.6	33.0	31.9	33.2	32.7	66.7	32.6	33.5	31.6	-	-	27.9	36.6	34.0
10-14	19.0	17.2	20.9	23.1	13.3	-	19.0	13.8	25.8	-	-	13.1	23.9	17.1
15-19	7.2	7.0	7.3	8.5	2.1	33.0	7.1	4.3	10.9	-	-	3.9	9.8	6.3

All figures are percentages / Source: Statscan: P.U.M.F., 1986 Census. / * See Definitions of Canadian-born and Drop-out, in text.

Table 8 Education and Labour-force Activity Characteristics

	Total	Sex		Med Fam Income		Aboriginal		Mother Tongue		Immigration		Visible Minority		Dropout
	15-18	Male	Female	Below	Above	Yes	No	Eng/Fr	Other	Cndian*	For. B	NonVis	VisMin	*
N (15 years and over)	559750	285550	274200	240450	286450	12900	546850	490300	69450	518700	41050	502850	56900	193300
HIGHEST LEVEL OF SCHOOLING														
Less than Grade 5	.2	.3	.2	.3	.1	.8	.2	.2	.5	.2	.6	.2	.2	.2
Grades 5-8	3.6	4.1	3.2	4.8	2.4	8.1	3.5	3.4	5.5	3.5	5.1	3.6	4.1	2.7
Grades 9-13	79.3	80.4	78.2	80.0	79.5	81.4	79.2	79.7	76.2	79.6	75.9	79.3	79.4	97.1
High School Graduate	14.0	13.1	14.9	12.2	15.3	6.6	14.1	13.9	14.2	13.6	14.1	14.1	12.7	
Post Secondary	2.9	2.1	3.5	2.6	2.7	3.2	2.9	2.9	3.6	2.9	4.2	2.8	3.6	
HIGHEST GRADE OF ELEMENTARY-SECONDARY														
Less than Grade 5	.2	.3	.2	.3	.1	.8	.2	.2	.5	.2	.6	.2	.2	.2
Grades 5-8	3.7	4.2	3.2	4.8	2.5	8.5	3.6	3.4	5.6	3.6	5.1	3.7	4.1	2.7
Grade 9	15.4	16.2	14.6	17.4	13.6	21.7	15.3	15.7	13.8	15.5	14.3	15.4	16.1	11.6
Grade 10	26.7	27.5	25.8	27.7	26.5	31.4	26.6	26.9	25.3	27.1	21.8	26.9	24.5	27.5
Grade 11	24.4	23.7	25.0	24.3	24.6	19.4	24.5	24.1	26.5	24.2	26.8	24.1	26.8	33.5
Grade 12	23.0	22.1	23.9	20.6	24.5	14.3	23.2	23.1	22.1	23.0	22.8	23.2	20.8	22.1
Grade 13	6.6	6.0	7.2	4.8	8.2	3.9	6.6	6.6	6.2	6.4	8.6	6.5	7.5	2.3
YEARS OF UNIVERSITY EDUCATION														
None	99.3	99.4	99.2	99.6	99.2	98.8	99.3	99.3	99.1	99.4	98.2	99.4	98.8	100.0
Some	.7	.6	.8	.4	.8	1.2	.7	.7	.9	.6	1.8	.6	1.2	0.0
YEARS OF NON-UNIVERSITY EDUCATION														
None	97.8	98.4	97.2	97.8	98.1	98.1	97.8	97.9	97.3	97.9	97.6	97.8	97.8	100.0
Some	2.2	1.6	2.8	2.8	1.9	1.9	2.2	2.1	2.7	2.1	2.4	2.2	2.2	0.0
TRADES & OTHER NON-UNIV. CERTIFICATE														
None	99.4	99.7	99.1	99.3	99.6	99.2	99.4	99.4	99.8	99.4	99.5	99.4	99.3	100.0
Some	.6	.3	.9	.7	.4	.8	.6	.6	.2	.6	.5	.6	.7	0.0
HIGHEST DEGREE														
None	83.9	85.3	82.5	85.9	82.7	91.1	83.8	84.0	83.6	84.0	82.9	83.9	84.8	100.0
Secondary School	15.4	14.2	16.6	13.4	16.9	7.8	15.6	15.3	16.1	15.3	16.3	15.5	14.4	0.0
Higher	.7	.5	.9	.7	.4	1.2	.6	.7	.3	.7	.8	.6	.8	0.0
LABOUR-FORCE ACTIVITY														
Employed	38.7	38.7	38.7	34.4	41.7	29.5	38.9	38.9	37.2	39.2	32.6	39.7	30.1	83.1
Unemployed	7.4	7.8	6.8	7.7	6.7	9.0	7.3	7.4	7.3	7.4	7.5	7.6	7.1	16.9
Previously in Labour-Force	16.1	17.2	15.3	15.7	17.0	13.4	16.4	16.5	14.6	16.2	16.4	16.2	15.6	0.0
Never in Labour-Force	37.6	36.2	39.1	42.2	34.7	48.1	37.3	37.1	41.0	37.1	43.5	36.5	47.2	0.0

All figures are percentages / Source: Statscan: P.U.M.F. 1986 Census / * see Definitions of Canadian-born and Drop-out, in text.

Table 9 Daily Time Use in Education, Paid and Domestic Work

	Total Ontario	In School Ontario	Dropout Ontario	In School Rest of Canada	Dropout Rest of Canada
N	614952	514144	31613	713443	65777
EDUCATION					
Full Time Classes	164.1	194.2	0.0	208.7	58.0
Part Time Classes	3.5	2.9	0.0	6.7	0.0
Home Work	86.4	95.4	29.8	90.2	7.7
Leisure Classes	4.7	5.0	0.0	4.6	0.0
Other Education	14.0	16.7	0.0	17.7	6.5
Related Travel	26.1	30.6	0.0	35.7	7.0
Total	319.8	369.7	29.7	383.1	85.6
PAID WORK					
Work For Pay	71.9	38.0	161.4	32.6	176.2
Other Time at Workplace	24.5	10.3	20.1	2.7	56.6
Related Travel	10.7	3.6	16.8	3.9	26.0
Total	107.0	51.9	198.4	39.2	258.8
HOUSEWORK					
Indoor Work	21.4	21.5	46.7	24.0	47.2
Outdoor Work	10.0	9.6	32.0	4.3	5.2
Related Travel	1.9	2.3	0.0	0.5	0.0
Total	33.0	33.4	78.7	28.8	52.4
CHILD CARE					
Baby Care	1.1	0.6	7.2	0.4	4.9
Child Care	0.1	0.0	0.0	0.4	1.8
Other Child Care	6.1	5.5	0.0	3.1	1.1
Related Travel	0.4	0.4	0.0	0.0	0.9
Total	7.6	6.5	7.2	3.8	8.7
SHOPPING/SERVICES					
Shopping	9.4	9.2	12.7	12.9	22.9
Services	1.7	1.1	13.3	2.7	10.1
Related Travel	5.3	5.1	4.4	5.8	13.2
Total	16.4	15.3	30.5	21.4	46.2

Table 10 Daily Time Use: Personal Care, Active and Passive Leisure

	Total Ontario	In School Ontario	Dropout Ontario	In School Rest of Canada	Dropout Rest of Canada
N	614952	514144	31613	713443	65777
PERSONAL CARE					
Dress, Wash,	47.5	46.4	49.3	49.2	49.5
Essential Sleep	510.9	521.3	430.1	526.1	538.4
Relax alone	20.4	16.2	85.2	18.0	10.2
Eating/Home	46.4	47.1	46.9	54.1	36.4
Eating/Out	12.5	13.4	10.7	10.0	14.8
Related Travel	5.1	5.1	3.3	8.5	14.1
Total	642.7	649.5	625.5	669.5	663.5
ORGANIZATIONAL ACTIVITY					
Organizational Activity	0.6	5.5	0.0	7.9	3.3
Related Travel	4.7	0.7	0.0	1.2	0.4
Total	4.8	5.5	0.0	9.1	3.7
ENTERTAINMENT					
Attending Events	13.1	14.9	0.0	8.6	17.8
Socialising with Friends	43.8	50.2	30.0	38.4	58.2
Going to Bars	2.5	1.5	0.0	7.6	1.3
Other Socials	4.8	5.7	0.0	1.3	10.2
Related Travel	10.9	11.8	4.9	13.8	16.3
Total	75.1	84.1	33.9	69.8	103.9
SPORTS/HOBBIES					
Sports/Hobbies	16.7	18.0	13.7	23.5	21.1
Related Travel	3.5	3.7	8.3	5.4	5.6
Total	33.6	37.1	29.1	53.1	44.2
MEDIA/COMMUNICATION					
Listening to Radio/Records	10.2	10.8	1.0	11.9	13.8
Watching TV	147.6	137.0	359.3	125.4	137.9
Reading Books, Newspapers,	10.7	8.6	23.2	9.5	1.7
Speaking on Telephone	14.4	15.1	7.2	12.5	15.2
Letters/Mail	0.3	0.3	0.0	0.5	1.0
Related Travel	0.2	0.2	0.0	0.1	0.0
Total	183.7	172.5	390.5	159.9	169.4

Table 11 Respondents' Satisfaction With Areas of Life

	Total Ontario	In School Ontario	Dropout Ontario	In School Rest of Canada	Dropout Rest of Canada
N	614952	514144	31613	713443	65777
SATISFACTION					
Very Happy Presently	52.3	53.3	23.8	47.8	34.1
VERY SATISFIED					
Health	56.0	58.8	10.5	61.2	49.9
Job/Main act	31.9	32.2	19.9	38.6	46.1
Time Use	52.0	54.7	20.4	46.4	31.5
Finances	19.0	18.1	22.8	23.6	16.4
Housing	59.2	60.3	33.3	67.0	56.8
Friendships	78.2	84.2	40.7	75.6	64.5
Partner or Single status	68.4	72.9	42.3	61.5	46.7
Rel't with Family	65.8	70.7	1.2	62.7	53.0
Self Esteem	49.9	51.2	31.2	55.9	43.4
Life	48.8	53.8	19.6	44.2	29.2

Table 12 Daily Time Use: Education, Paid and Domestic Work

CHARACTERISTIC N	In School Ontario 514144	Male 250485	Female 263569	English & French 522322	Other 92631	Canada 447340	Foreign Born 66804
EDUCATION							
Full Time Classes	194.2	172.3	215.0	166.6	150.1	196.4	179.4
Part Time Classes	2.9	5.3	0.5	0.5	20.2	0.7	17.1
Home Work	95.4	88.1	102.4	76.9	140.1	94.8	99.2
Leisure Classes	5.0	3.2	6.6	4.0	8.6	2.1	24.4
Other Eduction	16.7	16.0	17.4	14.3	12.1	18.0	8.3
Related Travel	30.6	26.9	34.2	26.0	26.7	31.4	25.3
Total	369.7	337.4	400.4	309.8	375.9	368.3	379.0
PAID WORK							
Work For Pay	38.0	53.3	23.5	76.6	45.4	40.5	21.4
Other Time at Workplace	10.3	20.1	1.0	20.6	46.2	2.6	61.9
Related Travel	3.6	4.5	2.7	11.1	8.7	3.3	5.4
Total	51.9	77.9	27.3	108.2	100.3	46.4	88.7
HOUSEWORK							
Indoor Work	21.5	14.8	27.9	21.3	22.0	20.3	29.6
Outdoor Work	9.6	10.0	9.3	11.4	0.0	10.9	1.2
Related Travel	2.3	0.3	4.1	0.1	11.8	2.6	0.0
Total	33.4	25.0	41.3	32.8	33.7	33.8	30.8
CHILD CARE							
Baby Care	0.6	0.0	1.2	1.3	0.0	0.7	0.0
Child Care	0.0	0.0	0.0	0.6	0.0	0.0	0.0
Other Child Care	5.5	2.8	8.1	6.5	4.0	6.4	0.0
Related Travel	0.4	0.0	0.7	0.5	0.0	0.4	0.0
Total	6.5	2.8	10.0	8.3	4.0	7.5	0.0
SHOPPING/SERVICES							
Shopping	9.2	11.5	7.0	7.9	18.0	6.3	28.8
Services	1.1	0.2	1.9	1.7	1.8	1.2	0.0
Related Travel	5.1	6.6	3.6	4.8	7.7	4.4	9.3
Total	15.3	18.3	12.5	14.4	27.6	11.9	38.1
PERSONAL CARE							
Dress, Wash,	46.4	42.2	50.5	45.6	58.2	43.2	67.9
Essential Sleep	521.3	489.1	552.0	508.6	523.8	520.6	526.3
Relax alone	16.2	12.4	19.7	22.6	8.3	16.0	17.5
Eating/Home	47.1	52.3	42.2	41.8	71.8	45.7	56.9
Eating/Out	13.4	16.7	10.4	13.1	8.9	12.4	20.3
Related Travel	5.1	5.6	4.6	5.1	4.5	5.4	3.1
Total	649.5	618.2	679.3	636.9	675.5	643.2	691.9

Table 13 Daily Time Use: Personal Care, Active and Passive Leisure

CHARACTERISTIC	Ontario	Male	Female	English & French	Other	Canada	Foreign Born
N	514144	250485	263569	522322	92631	447340	66804
ORGANIZATIONAL ACTIVITY							
Organizational Activity	5.5	2.6	6.9	4.2	3.7	3.1	16.2
Related Travel	0.7	0.8	0.6	0.5	1.1	0.5	1.9
Total	5.5	3.4	7.5	4.7	4.8	3.6	18.1
ENTERTAINMENT							
Attending Events	14.9	14.8	15.0	14.5	4.9	12.8	29.2
Socialising with Friends	50.2	64.0	37.1	47.6	22.8	55.6	14.3
Going to Bars	1.5	3.2	0.0	3.0	0.0	1.8	0.0
Other Socials	5.7	11.7	0.0	5.6	0.0	6.5	0.0
Related Travel	11.8	13.7	9.6	12.1	4.1	11.6	12.5
Total	84.1	107.6	61.7	82.8	31.8	88.3	56.0
SPORTS/HOBBIES							
Sports/Hobbies	18.0	31.6	5.0	17.6	12.1	16.2	29.7
Related Travel	3.7	6.6	0.9	4.0	0.8	3.3	6.1
Total	37.1	58.2	17.0	37.2	12.9	36.4	41.3
MEDIA/COMMUNICATION							
Listening to Radio/Records	10.8	15.5	6.3	11.2	4.6	12.2	1.7
Watching TV	137.0	153.4	121.4	152.8	118.3	144.6	85.9
Reading Books, Newspapers,	8.6	12.4	5.1	10.1	14.2	9.7	1.7
Speaking on Telephone	15.1	10.0	20.0	14.6	13.2	16.3	6.9
Letters/Mail	0.3	0.0	0.6	0.3	0.0	0.4	0.0
Related Travel	0.2	0.0	0.4	0.2	0.0	0.2	0.0
Total	172.5	191.2	154.7	189.7	150.3	183.9	96.1

Table 14 Satisfaction With Different Areas of Life

CHARACTERISTIC	Ontario	Male	Female	English & French	Other	Canada	Foreign Born
N	514144	250485	263659	522322	92631	447340	66804
SATISFACTION							
Very Happy	52.3	47.7	58.7	50.4	63.1	49.7	77.6
PRESENTLY VERY SATISFIED							
Health	56.0	51.8	65.5	55.7	57.5	59.1	57.3
Job/Main act	31.9	35.2	29.4	33.6	22.5	31.1	40.0
Time Use	52.0	52.2	57.1	54.6	37.5	54.1	58.3
Finances	19.0	20.3	16.0	20.7	9.6	18.2	17.2
Housing	59.2	56.2	64.1	62.1	42.6	62.9	42.7
Friendships	78.2	77.5	90.6	78.7	75.1	84.6	81.3
Partner or Single status	68.4	68.4	77.1	68.9	65.8	73.8	67.2
Rel't with Family	65.8	83.0	53.0	67.2	57.7	73.1	54.4
Self Esteem	49.9	52.4	50.0	52.4	35.8	50.5	55.5
Life	48.8	49.1	58.3	41.7	66.5	54.0	52.9

Table 15 Self-Satisfaction Ratings: Students vs. Dropouts

Area	In School/Dropouts Ontario	In School/Dropouts Rest of Canada
Generally Very Happy	MORE[†]	MORE
Very Satisfied in:		
Health	MORE	MORE
Job/Main Activity	MORE	MORE
Time Use	MORE	MORE
Finances	LESS	MORE
Housing	MORE	MORE
Friendships	MORE	MORE
Partner/Single Status	MORE	MORE
Rel't With Family	MORE	MORE
Self Esteem	MORE	MORE
Life	MORE	MORE

[†] MORE is used to denote patterns where those in school report being more satisfied than dropouts. LESS denotes patterns where whose in school report being less satisfied than dropouts.

Table 16 Self-Rating on Satisfaction: Sub-Group Comparisons

	Male / Female	English & French / Other	Canadian Born / Foreign Born
Very Happy	LESS	LESS	LESS
Very Satisfied in:			
Health	LESS	LESS	MORE
Job/Main Act	MORE	MORE	LESS
Time Use	LESS	MORE	LESS
Finances	MORE	MORE	MORE
Housing	LESS	MORE	MORE
Friendships	LESS	MORE	MORE
Partner/Single	LESS	MORE	MORE
Rel't with Fam	MORE	MORE	MORE
Self Esteem	MORE	MORE	LESS
Life	LESS	LESS	MORE

Table 17 High School, Interests, Future Education and Finances

CHARACTERISTIC N	TOTAL-ONT 7469184	INSC-ONT 498157	DROP-ONT 37971	INSC-RST 680824	DROP-RST 95879
COURSES TAKEN					
Mathematics	96.7	98.6	100.0	98.5	100.0
Chemistry	60.2	53.7	39.4	54.2	24.1
Geography	91.3	96.9	83.6	72.1	84.5
Physics	58.9	43.1	23.5	44.6	12.9
Computer use	34.5	66.3	18.0	66.8	25.4
Wordprocessing	68.1	72.6	33.6	72.5	42.5
Computer record-keeping	50.3	46.5	0.0	35.5	10.9
Computer data analysis	33.8	19.7	0.0	23.2	8.0
Computer Programming	29.3	54.4	0.0	49.6	43.2
	22.7	38.4	38.3	32.5	12.1
COMPUTER IN THE HOME?					
Do you use it?	67.9	75.7	57.1	80.9	53.3
FULL-TIME STUDENT?	73.1	99.1	N.A.	97.2	N.A.
INTEREST IN SCIENCE & TECHNOLOGY					
TV:Regular+Occasional	89.9	95.0	65.5	87.5	73.8
RADIO:Regular+Occasional	48.7	46.8	40.3	36.4	21.1
NEWSPAPER:Regular+Occ.	80.9	79.5	57.4	78.8	47.8
MAGAZINES:Regular+Occ.	72.1	71.9	50.0	72.7	39.4
ACADEMIC FUTURE (N.A.6258247)1					
Expect completion:					
1989	28.2	27.4	N.A.	30.2	N.A.
1990	23.6	31.4	N.A.	36.1	N.A.
1991	23.5	21.5	N.A.	25.2	N.A.
After 1991	24.7	19.8	N.A.	8.6	N.A.
Expect to do:					
Work	46.6	7.8	N.A.	17.4	N.A.
Further Education	51.3	86.4	N.A.	81.1	N.A.
More Education next 5 years?	29.2	93.3	91.6	91.2	68.2
Why? Prepare Career	28.4	91.2	31.4	89.5	42.1
Improve Career	34.9	2.4	19.8	2.8	19.7
Improve income	9.5	2.1	0.0	2.3	9.5
Pure Interest	15.5	2.6	0.0	5.2	8.8
Other	11.7	1.7	48.7	0.2	20.0
Eventual Degree?					
MA PhD	13.7	10.3	0.0	11.3	1.8
BA	27.1	49.4	0.0	36.6	2.1
Comm.Coll.Dip/Crt.	21.0	24.8	0.0	28.1	8.5
Tech.Bus. Dip/Crt.	17.2	11.3	0.0	18.0	42.2
Elem.or HSch.Dipl.	4.1	3.5	100.0	4.1	45.3
FINANCES IN 1988					
Received from Wages	75.6	71.3	100.0	60.7	77.8
Received from Government	44.5	2.7	4.2	13.5	33.9
Received from Investment	32.8	4.0	0.0	5.2	0.0
Received from Other	4.2	3.4	0.0	4.1	0.0
MEDIAN PERSONAL INCOME	$195862	$1,242	-	$540	$6205

Source: Statscan, General Social Survey: Cycle 4: Education and Work.

Notes: [1] Academic future only applies to those still studying in Ontario, hence is N.A. (Not applicable) to most.

[2] Median personal income is based on all reported income, including those whose income was zero. For drop-outs in Ontario, the data appears to be inexact.

Table 18 Interests, Opinions, Involvement and Satisfaction

CHARACTERISTIC	TOTAL-ONT	INSC-ONT	DROP-ONT	INSC-RST	DROP-RST
N	7469184	498157	37971	680824	95879
INTERESTS					
Very Interested in:					
Current Affairs	51.2	30.3	21.9	22.8	12.3
Economic Conditions	35.5	16.0	17.5	13.6	10.1
New Inventions	33.0	37.7	17.5	50.0	6.9
Recent Scientific Discoveries	35.3	34.5	17.5	49.2	14.7
Very well informed about:					
Current Affairs	29.8	24.1	0.0	21.3	8.1
Economic Conditions	19.9	7.5	0.0	7.2	4.5
New Inventions	14.6	15.4	17.5	14.8	3.8
Recent Scientific Discoveries	12.8	18.3	12.5	13.8	6.4
OPINIONS					
Government spending is too LOW on:					
Health Care	62.4	65.6	60.8	57.0	48.6
Helping Older people	67.0	[illegible]	7.7	62.6	52.1
Education	47.6	48.9	0.0	52.4	49.4
Helping Unemployed	74.8	52.7	30.9	42.0	57.3
Scientific Research	36.9	39.6	31.3	39.4	14.6
Low Income people	47.4	56.9	34.5	56.3	65.3
Reducing Pollution	84.8	84.6	76.7	90.2	82.2
INVOLVEMENT					
Involved in:					
Charitable, volunteer work	21.5	15.5	17.5	21.8	8.2
Community, School Assoc.	20.4	33.7	0.0	39.2	9.2
Church group	16.7	15.9	0.0	23.9	3.7
Cultural, Ethnic group	15.4	4.6	0.0	14.9	6.8
Sport, Athletic group	24.1	44.7	0.0	52.3	16.1
Public Interest group	5.2	9.4	0.0	7.9	0.0
Business/Professional group	13.0	2.4	0.0	3.8	0.0
Political Organization	4.9	7.2	0.0	4.6	0.0
Median hrs./mnth.spent on groups	10.6	12.5	12.0	15.2	30.3
Member of Labour Union	16.6	2.6	28.3	2.3	11.1
Religion					
Declare a Religion	84.1	73.2	72.4	82.5	91.3
Attend at least few times/year	71.0	73.2	22.7	73.3	50.1
SATISFACTION					
Somewhat+Very HAPPY	95.2	96.8	68.7	98.2	93.1
Strongly Satisfied with:					
Health	60.7	72.2	78.9	72.5	55.3
Education	36.9	56.1	0.0	53.5	3.5
Job	54.0	49.5	58.5	56.2	38.9
How time spent	55.1	60.0	47.8	58.3	39.2
Finances	27.6	18.5	38.3	20.6	18.1
Housing	57.4	62.3	37.3	74.2	65.7
Spouse,Partner,Single status	71.3	81.5	69.6	59.3	66.1
Relationship w.friends,family	75.6	76.1	36.2	82.5	73.5
Yourself (Self-esteem)	66.9	71.9	60.1	67.5	48.3
Life as a Whole	60.9	71.6	64.5	63.2	44.4

Source: Statscan, General Social Survey: Cycle 4: Education and Work.

Table 19 High School, Interests, Future Education and Finances

CHARACTERISTIC N	ISNC-Ont 498157	Male 257477	Female 240680	Eng/Fr 417729	Other 80427	Canada 417312	Foreign Born 80845
COURSES TAKEN							
Mathematics	98.6	97.3	100.0	98.4	100.0	98.4	100.0
Chemistry	53.7	51.6	55.9	52.9	57.6	52.9	57.8
Geography	95.9	100.0	93.6	96.2	100.0	97.4	94.3
Physics	43.1	46.8	39.3	45.1	33.1	41.9	49.2
Computer use	66.3	62.9	69.9	63.4	81.4	62.4	60.5
Wordprocessing	72.6	75.4	70.0	72.6	73.1	70.9	83.1
Computer record-keeping	46.5	38.9	53.9	46.1	48.3	45.9	49.8
Computer data analysis	19.7	17.6	21.9	21.1	12.9	18.9	24.7
Computer Programming	54.4	50.3	58.3	58.0	35.6	56.5	41.2
COMPUTER IN THE HOME?	38.4	37.2	39.7	41.0	25.2	43.5	12.0
Do you use it?	75.7	79.1	72.3	75.8	75.1	77.2	48.1
FULL-TIME STUDENT?	99.1	100.0	98.1	98.9	100.0	98.9	100.0
INTEREST IN SCIENCE & TECHNOLOGY							
TV:Regular + Occasional	95.0	95.3	94.5	85.7	91.1	94.0	100.0
RADIO:Regular + Occasional	46.8	42.4	51.6	50.6	27.1	46.8	47.0
NEWSPAPER:Regular + Occasional	79.5	85.4	73.0	79.2	80.5	78.9	82.4
MAGAZINES:Regular + Occasional	71.9	66.5	77.6	71.6	73.5	71.0	76.5
ACADEMIC FUTURE							
Expect completion:							
1989	27.4	18.8	36.6	29.4	16.8	27.0	29.6
1990	31.4	35.5	27.1	30.6	35.7	31.0	33.5
1991	21.5	28.1	14.3	22.1	18.0	23.0	13.3
After 1991	19.8	17.7	22.0	17.8	29.4	18.9	23.7
Expect to do:							
Work	7.8	11.6	4.7	7.1	14.0	10.7	0.0
Further Education	86.4	85.6	95.3	91.2	86.0	88.3	100.0
More Educ.nxt.5yrs?	93.3	94.6	92.0	92.0	100.0	91.9	100.0
Why? Prepare Career	91.2	87.9	94.7	90.3	95.5	89.3	100.0
Improve Career	2.4	4.7	0.0	2.9	0.0	2.9	0.0
Improve income	2.1	4.6	0.0	2.9	0.0	2.9	0.0
Pure Interest	2.6	2.8	3.2	2.7	4.5	3.7	0.0
Other	1.7	0.0	2.1	1.2	0.0	1.2	0.0
Eventual Degree?							
MA PhD	10.3	15.7	5.7	9.7	13.6	9.9	12.5
BA	49.4	41.9	55.9	50.1	46.0	50.9	42.7
Comm.Coll.Dip/Crt.	24.8	25.2	24.5	26.1	18.6	25.8	20.7
Tech.Bus. Dip/Crt.	11.3	8.4	13.8	9.2	21.8	8.4	24.2
Elem.or HSch.Dipl.	3.5	8.8	0.0	5.0	0.0	5.0	0.0
FINANCES IN 1988							
Received from Wages	71.3	76.1	66.1	72.9	62.7	72.7	63.9
Received from Government	2.7	0.0	5.6	3.2	0.0	3.2	0.0
Received from Investment	4.0	3.0	5.0	4.8	0.0	4.8	0.0
Received from Other	3.4	3.2	3.5	4.0	0.0	2.8	6.0

Source: Statscan, General Social Survey: Cycle 4: Education and Work.

Table 20 Interests, Opinions, Involvement, Satisfaction

CHARACTERISTIC	INSC-Ont	Male	Female	Eng/Fr	Other	Canada	Foreign Born
N	498157	257477	240680	417729	80427	417312	80845
INTERESTS							
Very Interested in:							
Current Affairs	30.3	26.2	34.8	32.0	21.7	29.7	33.7
Economic Conditions	16.0	20.6	10.9	13.6	28.2	13.7	27.7
New Inventions	37.7	47.0	27.8	35.3	50.6	32.7	63.9
Recent Scientific Discoveries	34.5	43.4	25.0	32.2	46.8	32.0	47.9
Very well Informed about:							
Current Affairs	24.1	29.2	18.7	24.7	20.8	25.9	14.7
Economic Conditions	7.5	8.6	6.5	6.6	13.2	6.6	12.5
New Inventions	15.4	20.8	9.8	14.5	21.2	14.8	19.1
Recent Scientific Discoveries	18.3	24.2	12.0	15.4	36.6	15.9	31.3
OPINIONS							
Government spending is too LOW on:							
Health Care	65.6	64.6	66.6	68.0	53.1	65.6	65.5
Helping Older people	66.7	75.2	58.3	69.8	51.3	67.4	63.6
Education	48.9	48.9	49.0	50.8	37.4	51.3	36.5
Helping Unemployed	52.7	52.3	53.2	53.8	47.3	55.2	40.4
Scientific Research	39.6	49.8	29.1	39.1	42.9	34.7	65.9
Low Income People	56.9	58.2	55.5	53.2	80.4	53.6	78.3
Reducing Pollution	84.6	87.0	82.0	85.2	81.1	85.6	78.3
INVOLVEMENT							
Involved in:							
Charitable, volunteer work	15.5	14.4	16.7	15.8	14.3	16.0	13.2
Community, School Assoc.	33.7	30.9	36.7	33.4	35.5	33.8	33.4
Church group	15.9	5.4	27.1	15.4	18.4	17.9	5.6
Cultural, Ethnic group	4.6	3.8	5.5	4.4	5.6	4.4	5.6
Sport, Athletic group	44.7	54.4	34.4	46.2	37.2	45.5	40.6
Public Interest group	9.4	6.7	12.4	11.3	0.0	9.8	7.4
Business/Professional group	2.4	2.0	2.8	1.6	6.3	1.6	6.2
Political Organization	7.2	10.5	3.8	6.8	9.3	8.6	0.0
Median hours/month spent on groups	12.5	11.9	13.7	13.6	9.9	13.5	6.7
Member of Labour Union	2.6	5.0	0.0	3.1	0.0	3.1	0.0
Religion							
Declare a Religion	73.2	68.3	78.5	74.4	67.3	75.1	63.7
Attend at least few times/year	73.2	66.2	79.8	69.3	95.8	71.2	85.5
SATISFACTION							
Somewhat+Very HAPPY	96.8	97.0	96.4	98.5	87.9	96.5	100.0
Strongly Satisfied with:							
Health	72.2	73.7	70.5	73.3	66.6	71.8	74.1
Education	56.1	54.8	57.5	57.8	47.5	59.5	38.5
Job	49.5	51.1	47.8	52.6	33.7	54.0	27.4
How time spent	60.0	51.7	48.3	61.5	53.3	60.5	58.6
Finances	18.5	19.5	17.5	18.7	17.3	17.1	26.4
Housing	62.3	53.8	71.7	66.7	36.5	66.0	40.6
Spouse, Partner, Single Status	81.5	73.4	90.3	83.0	71.8	83.6	69.8
Relationship with friends, family	76.1	82.2	69.7	78.3	64.7	74.9	82.5
Yourself (Self-esteem)	71.9	81.9	61.5	70.4	80.7	69.2	87.3
Life as a whole	71.6	78.8	64.2	71.8	70.4	70.4	78.4

Source: Statscan, General Social Survey: Cycle 4: Education and Work.

Table 21 Background Charactersistics

CHARACTERISTIC	**12-14**	**15-18**	**15-18M**	**15-18F**
N	217248	213391	106540	106851
Interview in English (%)	93.8	93.5	94.8	92.1
SEX				
Male	48.2	49.9	-	-
Female		51.8	50.1	--
GRADE				
- 7	57.9	.1	.1	-
- 9	42.1	26.8	28.0	25.4
- 11	-	53.5	54.8	52.3
- 13	-	19.6	17.1	22.3
LIVE WITH BOTH PARENTS	81.2	79.4	81.0	77.8
GRADES GENERALLY GET : Median	71.9	73.0	73.5	72.5
FEEL PRESSURE TO GET GOOD GRADES: Some + A lot	64.5	76.8	73.4	80.2
USUALLY SPEND TIME OUT OF SCHOOL:				
At home, reading, TV	33.4	17.9	15.8	20.2
At friends house	11.9	7.1	7.3	6.9
Out with friends	19.6	26.7	24.3	29.1
School Activities	5.0	8.7	9.2	7.9
Non-School Activities	14.4	11.4	14.9	8.1
Hanging around	8.1	6.3	6.1	6.6
Working at a Part-time job	7.6	21.9	22.4	21.2
ALLOWED TO SPEND AS YOU WISH, EACH WEEK:				
Average $:	82.1	138.9	143.7	132.1
S.D.	248.3	296.8	297.6	293.6
RATE PHYSICAL HEALTH:				
Excellent	37.2	27.7	32.9	22.7
Very good	40.9	43.2	42.7	43.6
Good, fair, poor	21.9	29.0	24.4	33.7
PARTICIPATED IN (in past 12 months):				
Court sports (Tennis, squash etc.)	83.2	76.8	78.4	74.9
Track and Field	45.3	35.9	41.1	30.5
Football	32.4	29.8	45.2	13.9
Other Field sports	51.1	48.9	68.1	49.8
Body building	32.8	45.7	57.6	33.3
Other Activities	58.6	60.6	59.1	61.9

Source: Survey data, Addiction Research Foundation study carried out by Institute of Social Research, York University, P710ARF, 1989.

Table 22 Tobacco, Alcohol and Drug Use

	12-14	15-18	15-18M	15-18F
N	217248	213391	106540	106851
SUBSTANCES				
Regular use in 12 months preceding interview				
Tobacco	8.4	20.5	18.3	22.7
Alcohol	9.5	36.4	41.0	31.7
Cannabis	1.4	9.5	10.4	8.4
Glue sniffing	.4	.5	1.0	-
Solvent sniffing	.5	.6	.8	.2
Barbiturates without prescription	.3	.8	1.2	.5
Barbiturates with prescription	.9	1.2	1.2	1.2
Heroin	.2	.5	.6	.3
Speed	.3	.8	1.1	.4
Stimulants without prescription	.9	3.0	2.5	3.3
Stimulants with prescription	.5	.8	1.1	.4
Tranquillizers without prescription	.1	.7	.7	.6
Tranquillizers with prescription	.2	.9	.7	1.2
LSD	.8	2.7	3.4	1.8
PCP	-	.6	1.0	.2
Hallucinogens other than LSD or PCP	.2	1.7	2.1	1.2
Cocaine	.3	1.1	1.7	.4
Use at all in 12 months				
Crack	.9	1.6	1.8	1.3
Andrenochrome	.4	.4	.8	.1
TOBACCO				
Never smoked	58.4	34.6	35.3	34.1
Pressured to use cigarettes?				
Never	48.1	20.8	21.7	20.2
Offered, no pressure	39.3	67.5	65.9	69.0
Several pressures	12.6	11.7	12.4	10.8
First smoke, Grade 7 and before	78.6	54.1	58.1	51.5
Reason tried smoking first time				
See what it is like	57.2	55.4	55.3	55.5
Friends smoking	14.9	17.7	18.7	16.7
Other	27.9	26.9	26.0	27.8
Reason for not trying tobacco				
Might be harmful	32.5	22.7	25.5	19.8
Stupid	19.4	10.3	9.6	11.1
Tried Once	22.4	43.6	42.1	45.4
Other	25.7	23.4	22.8	23.7

Source: Survey data, Addiction Research Foundation study carried out by Institute of Social Research, York University, P710ARF, 1989.

Table 23 Circumstances Surrounding Use of Alcohol

N	12-14 217248	15-18 213391	15-18M 106540	15-18F 106851
Bottles of BEER drunk at any one time:				
None	72.6	40.1	31.1	49.0
1-3	21.0	30.1	31.4	28.7
4-6	4.1	18.7	20.6	17.0
7+	2.3	11.1	16.9	5.3
Glasses of WINE drunk at any one time:				
None	66.9	52.8	58.2	47.3
1-3	30.4	39.7	36.0	43.5
4-6	1.8	4.6	3.3	5.9
7+	.9	2.9	2.5	3.3
Drinks of HARD LIQUOR taken at any one time:				
None	76.7	42.4	40.9	43.6
1-2	15.7	26.2	27.4	25.2
3-4	5.1	16.7	13.5	19.8
5+	2.5	14.7	18.1	11.4
How EASY to get ALCOHOL?				
Easy and Very Easy	47.0	78.2	80.8	75.6
Difficult & Very difficult	29.2	15.4	13.4	17.3
Impossible	23.8	6.4	5.8	7.0
Never used ALCOHOL	36.3	11.7	11.7	11.7
Pressured to use ALCOHOL?				
Never	47.6	12.9	13.0	12.7
Offered, no pressure	43.3	72.7	70.9	74.5
Several pressures	9.1	14.4	16.1	12.8
First drink, Grade 7 and before	77.7	38.7	42.9	34.0
Reason tried drinking first time:				
See what it is like, curious	34.0	32.8	34.6	31.1
Friends drinking	5.2	7.8	7.8	7.8
Parents offered	10.4	14.0	13.1	15.1
Special Event	35.5	27.1	25.4	28.7
Other	14.9	18.3	19.1	17.3
Reason for not trying ALCOHOL:				
Might be harmful	19.9	7.4	9.4	5.2
Don't need it, not interested	11.2	8.3	7.7	8.9
Tried Once	35.8	66.3	65.8	67.4
Other	33.1	18.0	17.1	18.5
DRINKERS ONLY				
Do Parents think you drink too much?				
Yes	2.2	4.2	5.8	2.2
No	51.0	48.2	45.4	51.0
Don't know what Parents think	12.4	10.6	10.9	10.4
Parents don't know that I drink	34.4	37.0	37.9	36.4
In 4 weeks preceding interview:				
Alcohol made you tight?	4.3	15.4	18.8	11.8
Warned by Police about drinking	3.8	12.1	14.9	9.4
Saw a doctor, re drinking	.8	1.9	1.4	2.5
Talked to school counsellor/teacher, re drinking	.8	1.4	1.4	1.5
Wish you could drink less than you do?	10.6	6.0	5.7	6.5

Table 24 Circumstances Surrounding Use of Drugs

	12-14	15-18	15-18M	15-18F
N	217248	213391	106540	106851
CANNABIS				
How EASY to get CANNABIS?				
Easy and Very Easy	13.1	41.3	42.2	40.4
Difficult & Very difficult	17.5	24.7	27.0	22.7
Impossible	45.6	21.9	18.7	24.8
Don't know cannabis	23.7	12.1	12.1	12.1
Never used CANNABIS	93.2	72.1	70.9	73.2
Pressured to use CANNABIS?				
Never	86.5	59.0	57.4	60.6
Offered, no pressure	10.3	34.8	36.5	33.2
Several pressures	3.2	6.2	6.1	6.2
First CANNABIS, Grade 7 and before	**44.1**	**18.3**	**21.3**	**14.9**
Reason tried CANNABIS first time:				
See what it is like, curious	39.4	59.9	58.5	60.9
Friends using	15.2	11.6	11.1	12.5
Special Event	4.5	4.2	6.4	2.2
Other	40.9	24.3	24.0	24.2
Reason for not trying CANNABIS:				
Might be harmful	20.4	14.9	17.6	11.9
Don't need it, not interested	12.5	17.6	13.5	21.6
Tried Once	3.3	12.0	14.1	10.1
Stupid	30.2	30.3	29.3	31.4
Other	33.6	25.2	25.5	25.0
How many friends used CANNABIS in last 12 months?				
None	78.1	47.4	46.9	47.9
Some	16.9	35.8	37.5	34.4
Half or more	5.0	16.8	15.6	17.7
Likely and very likely				
To use CANNABIS next year:	23.7	43.1	40.6	45.8
Police will catch you if you use pot	32.2	12.8	11.0	14.6
Parents will find out if you use pot	61.6	31.1	27.9	34.4
You will develop health problems if you use pot	73.4	50.9	45.7	55.8
Most serious consequence of using CANNABIS?				
Caught by police	18.9	28.0	28.7	27.3
Parents will find out	40.6	41.0	38.9	43.2
Health Problems	40.5	31.1	32.5	29.5
How easy is it to get COCAINE?				
Easy and Very easy	8.9	20.6	19.5	21.8
Difficult and Very difficult	26.0	45.4	47.5	43.6
Impossible	59.1	30.1	29.0	30.9
Don't know cocaine	5.9	3.8	4.0	3.7
Ever used to increase performance in sport or activity:				
Stimulants	.4	1.8	2.7	.9
Caffeine	13.8	20.0	20.2	19.5
Relaxants	3.9	8.5	9.0	7.9
Steroids	.9	1.6	3.1	.2
In past 12 months injected:				
Medical drug	55.0	55.6	48.5	74.1
Heroin	3.4	11.0	10.0	11.0
Speed	4.6	7.1	4.4	10.1
LSD	5.3	9.7	12.9	0.0
Cocaine	4.1	12.2	11.7	11.3
Steroids	3.7	12.4	17.6	2.1
Shared Needles? Syringes?				
Yes	2.3	6.1	2.4	11.3
Did not share needles, syringes because FEAR AIDS	36.3	15.3	16.2	14.5
Fear AIDS and Other	63.7	84.7	83.8	85.5

Source: Survey data, Addiction Research Foundation study carried out by Institute of Social Research, York University, P710ARF, 1989.

Table 25 General Situation

	12-14	15-18	15-18M	15-18F
N	217248	213391	106540	106851
CLASSES IN LAST SCHOOL YEAR DISCUSSING:				
Alcohol use	79.6	76.4	74.9	77.8
Cannabis	58.2	53.9	56.0	51.6
Tobacco	74.1	65.0	64.0	65.8
Other Drugs	77.0	62.8	62.8	62.8
OPINIONS AND VALUES				
"I would try to get into a movie without paying"	39.5	59.6	69.3	50.1
"I have never intensely disliked anyone"	30.3	32.4	34.1	30.8
"I've played sick to get out of doing something"	58.3	71.5	70.5	72.4
"I'm always willing to admit when mistaken"	42.1	43.6	44.0	43.2
"I've never deliberately hurt someone's feelings"	39.3	36.6	32.7	40.3
"I have never been arrested for using Cannabis"	99.9	99.3	98.9	99.9
"I agree and strongly agree, it's alright to:				
Get around the law if you can get away with it"	11.8	22.7	29.3	16.3
Do anything, as long as you stay out of trouble"	16.8	12.2	16.1	8.5
DRIVING N[1]	61642	151434	79792	71018
	(28.3)	(71.0)	(74.9)	(66.5)
HOW LONG LICENSED TO DRIVE?				
No Licence	97.0	24.4	24.0	24.8
Beginners	1.5	18.2	17.3	19.2
One year or less	1.5	40.3	41.3	39.0
More	0.0	17.1	17.4	17.0
ACCIDENT WHILE DRIVING IN LAST 12 MONTHS?				
No	92.7	82.2	80.5	84.2
Once	5.7	13.6	14.4	12.7
More	1.6	4.2	5.1	3.1
ACCIDENT WHILE DRIVING AFTER DRINKING?				
No	98.9	98.4	97.9	99.0
Once	.5	1.2	1.6	.9
More	.6	.4	.5	.1
EVER CONVICTED OF DRINKING-DRIVING? No	**99.6**	**99.3**	**99.2**	**99.4**
DRIVEN WITHIN HOUR OF DRINK, LAST 12 MONTHS?				
No	91.2	81.0	78.3	84.1
Once	6.0	8.3	8.0	8.6
Twice	.6	4.3	4.9	3.6
More	2.2	6.4	8.8	3.7

Source: Survey data, Addiction Research Foundation study carried out by Institute of Social Research, York University, P710ARF, 1989.

Note: [1] Total numbers for these questions are lower. Respondents who had never driven a vehicle (with or without a driver's licence) were told not to answer these questions. The numbers for 12-14 year olds remain high, none-the-less, yet 97.0 per cent said they had 'no licence'. The respective proportions of total, male and female 15-18 year olds who answered these questions, are given in parenthesis.

Table 26 Parents' Educational Attainment vs Adult Labour Force

	*Adult Canadian Labour Force	Subjects' Mothers	Subjects' Fathers
Secondary school or less	57.9%	42.2%	39.8%
Some Post-Secondary	9.4%	19.5%	15.4%
Post-Secondary Certificate/Diploma	22.4%	16.2%	8.4%
University Degree	10.2%	22.1%	36.4%

*Source: Statistics Canada, The Labour Force, January, 1990

Table 27 Parental Influence and Encouragement

	Percentage of Negative Responses	Percentage of Positive Responses
Mother encourages me to do well in math	7.9	78.5
Mother encourages me to do well in science	7.4	81.3
Father encourages me to do well in math	10.9	75.9
Father encourages me to do well in science	10.9	74.7
Mother knows a lot about science	50.3	17.3
Mother is good at math	33.7	29.2
Father knows a lot about science	32.8	42.0
Father is good at math	26.0	54.9
Mother's reaction to your choice of job	7.7	82.2
Father's reaction to your choice of job	8.5	78.2

Table 28 Student Aspirations in Science vs Non-Science Careers

		Science	Non-Science
My parents would like me to be a scientist, doctor or engineer	% of Mothers	64	42
	% of Fathers	67	40
Science knowledge	% high	45	30
	% low	18	38
Involvement in science activities	% high	42	23
	% low	17	28
Interest in science	% high	70	37
	% low	2	4

Table 29 Gender Differences: Science Dimensions

		Males	Females
Images of Scientists	% Positive	51	32
	% Negative	15	36
Views of Science	% Positive	43	20
	% Negative	21	39
Science/Technology Attitudes	% Positive	40	21
	% Negative	25	43
Science Knowledge	% High	53	26
	% Low	20	34
Science Activities	% High	51	20
	% Low	15	30

Note: Chi-square tests indicated that gender groups differed significantly. In all of these analyses P < .01.

APPENDIX B — FIGURES AND TABLES

Figure B1 High School Program by Mother's Education

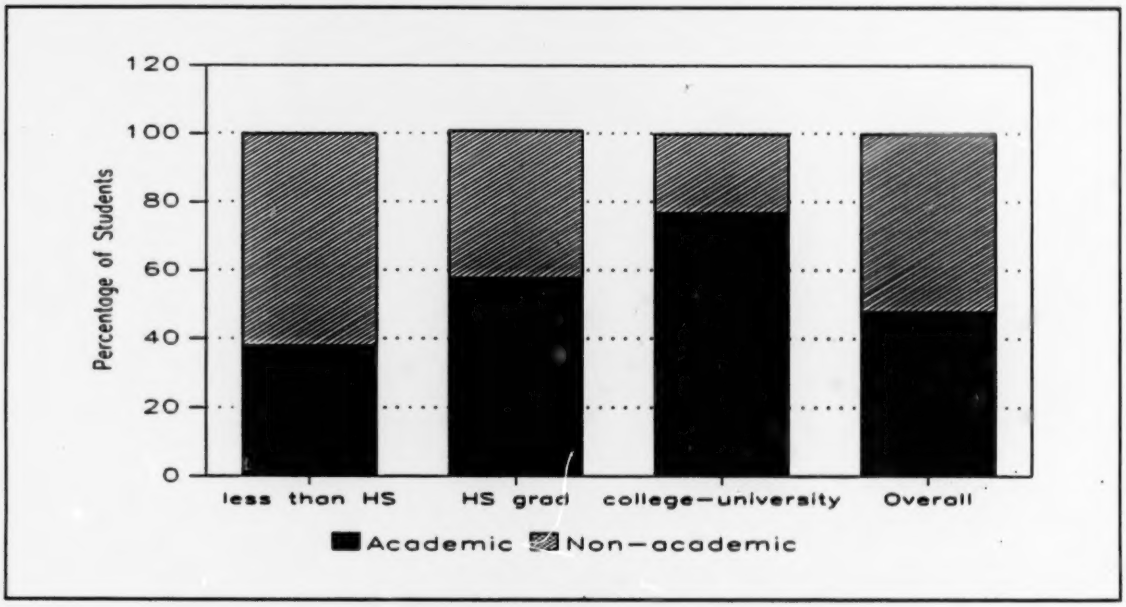


Figure B2 High school program by father's occupation

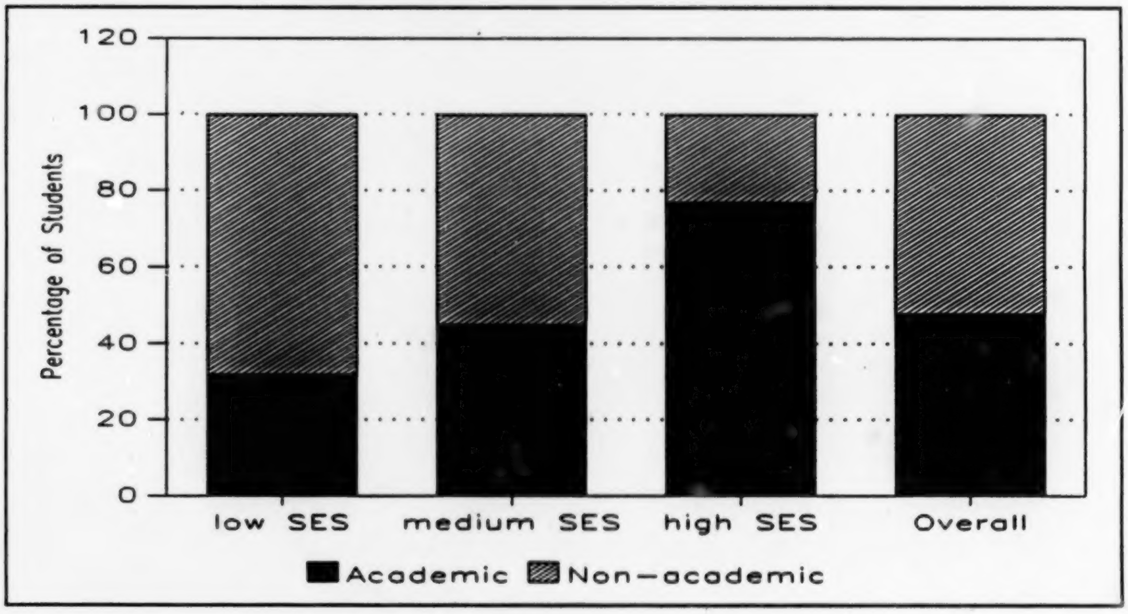


Figure B3 High school program by gender

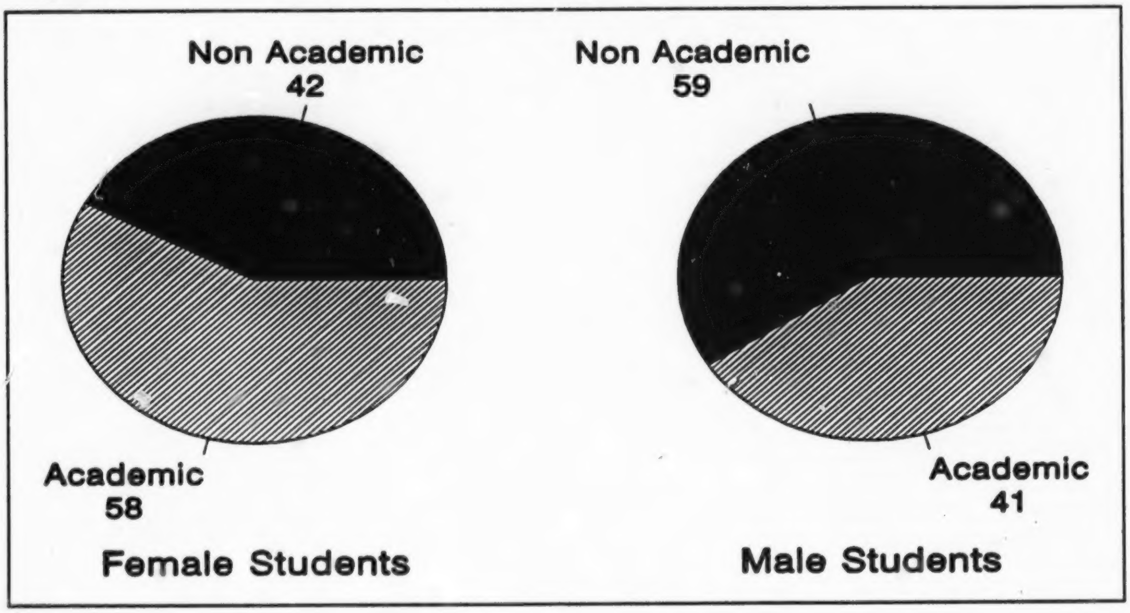


Figure B4 University Expectations by Mother's Ed./Occ. Attainment

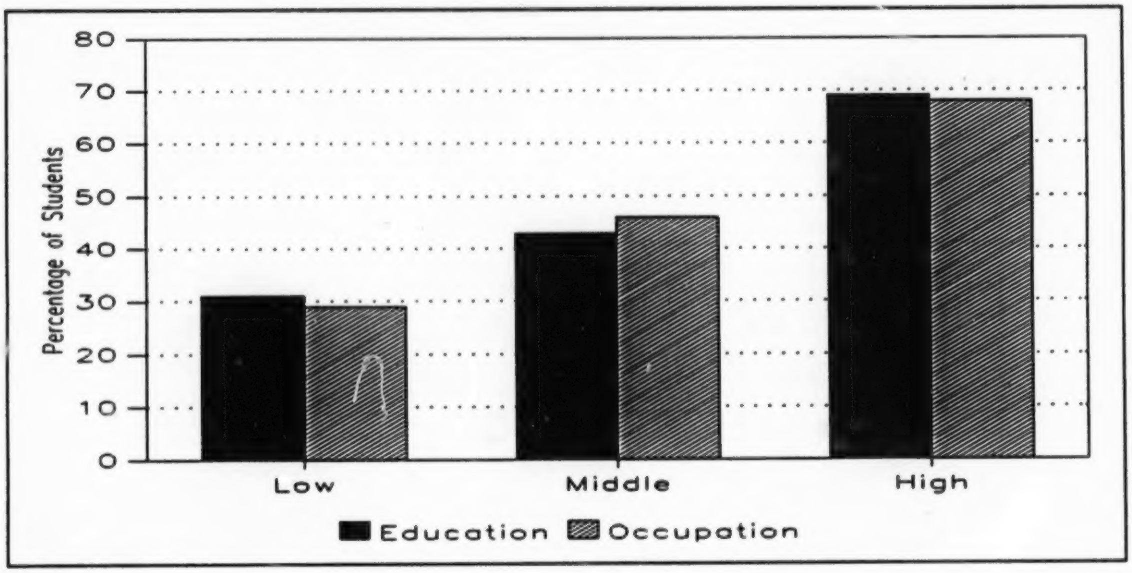


Figure B5 University Expectation by Father's Ed./Occ. Attainment

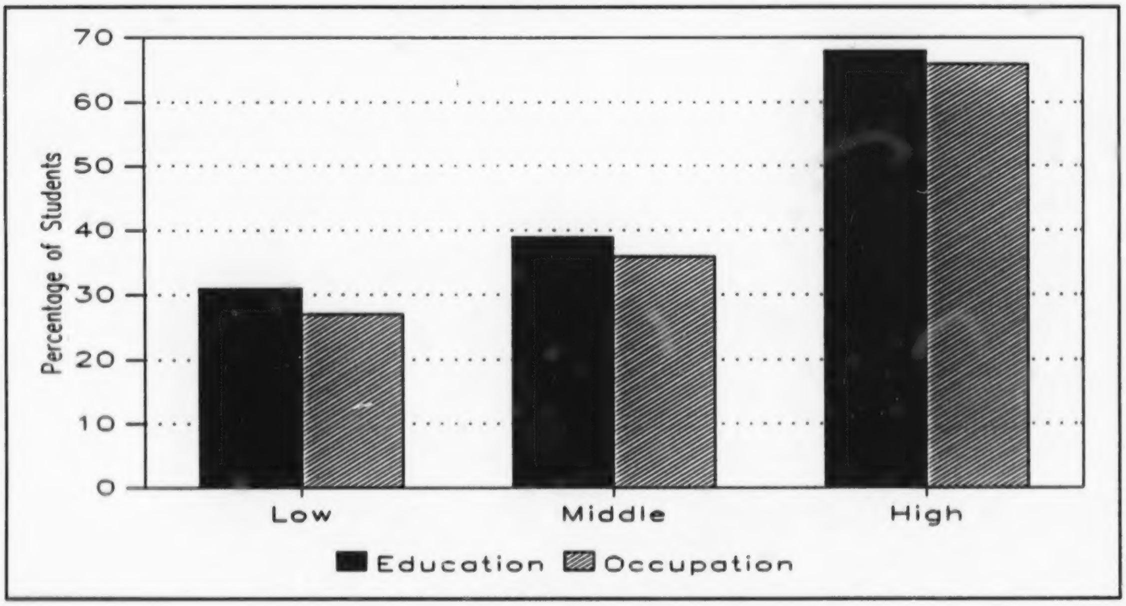


Figure B6 High Occupational Aspirations by Level of Mother's Education

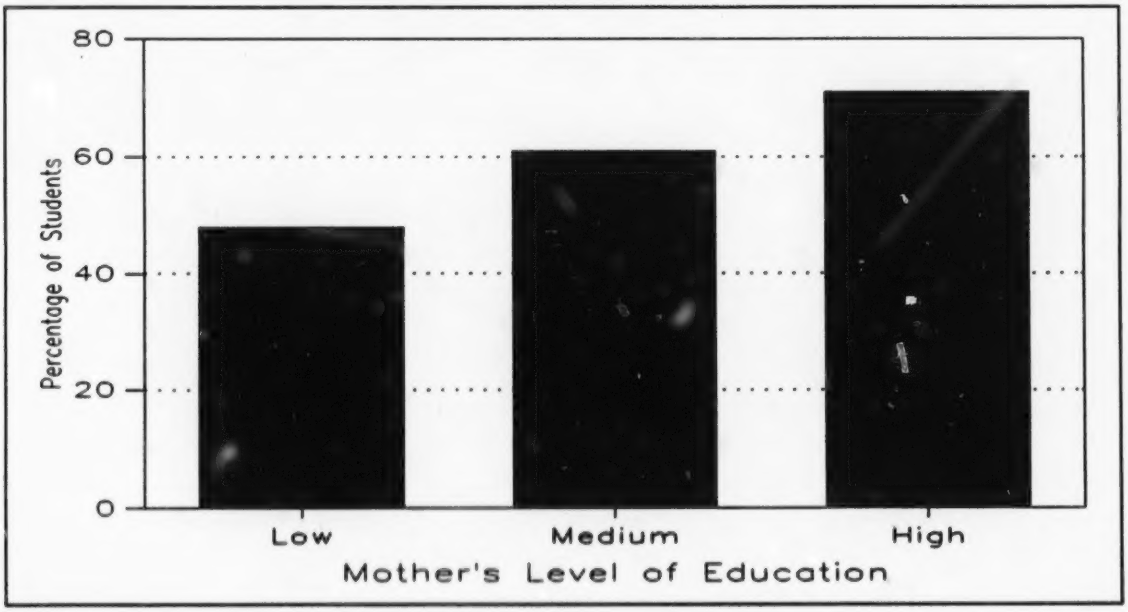


Figure B7 Occupational Aspirations by Level of Study

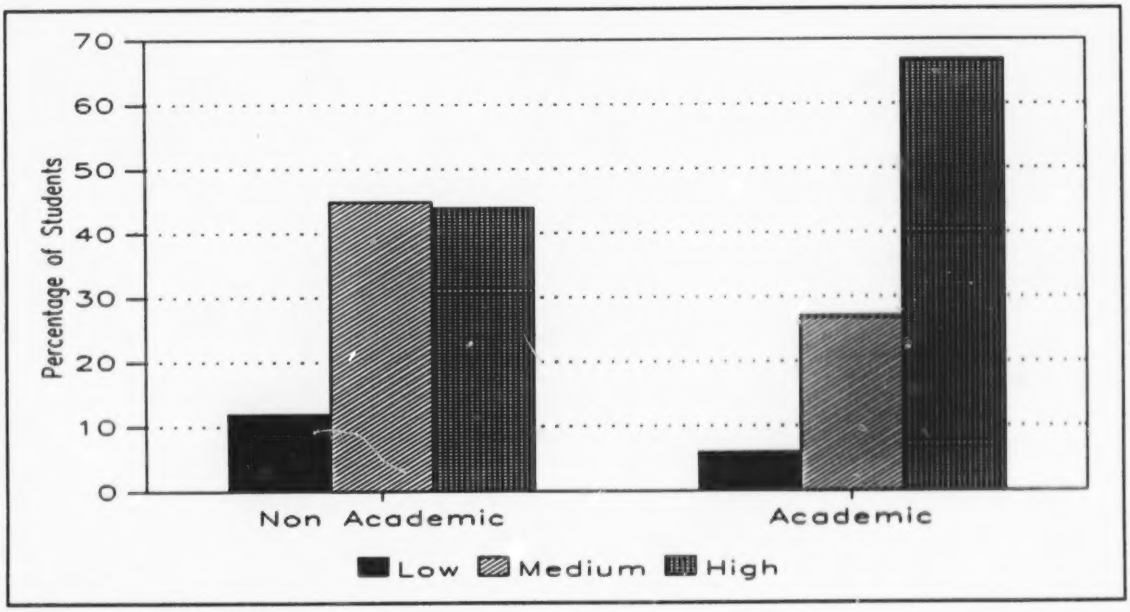


Figure B8 Perceptions of the Value of Education

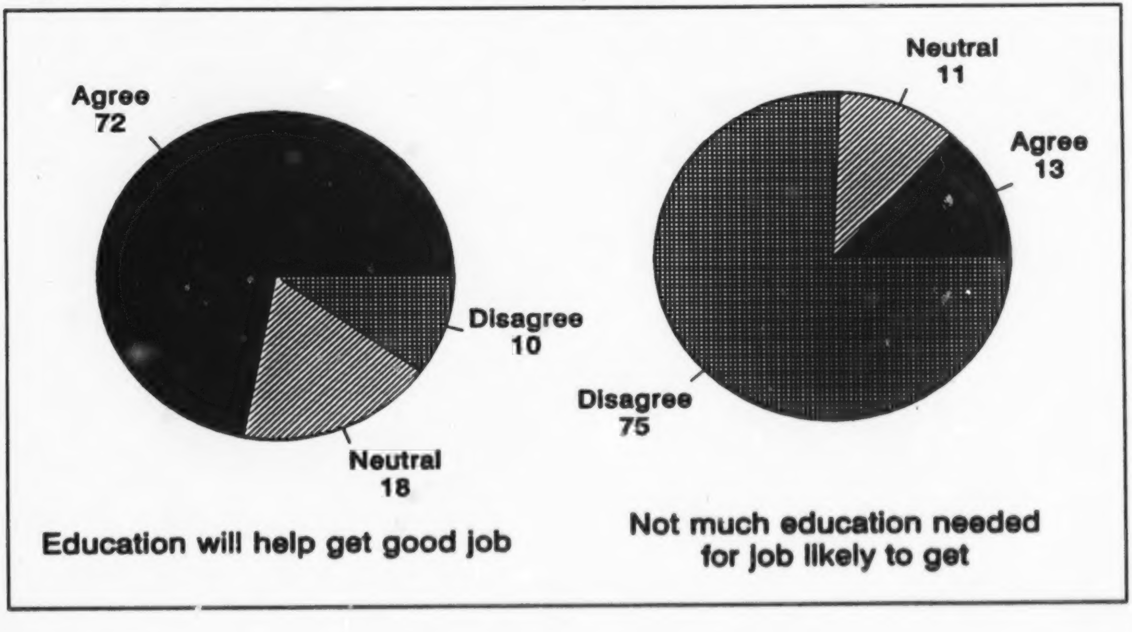


Figure B9 Parent's Socioeconomic Status Based on Occupation

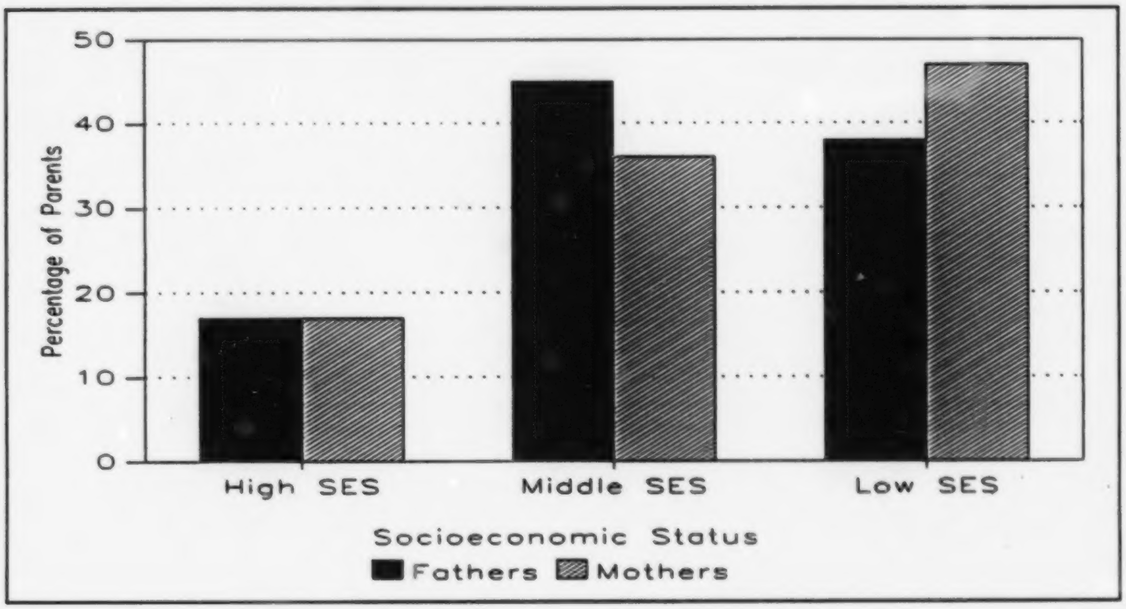


Figure B10 Students in General Stream by Parental SES

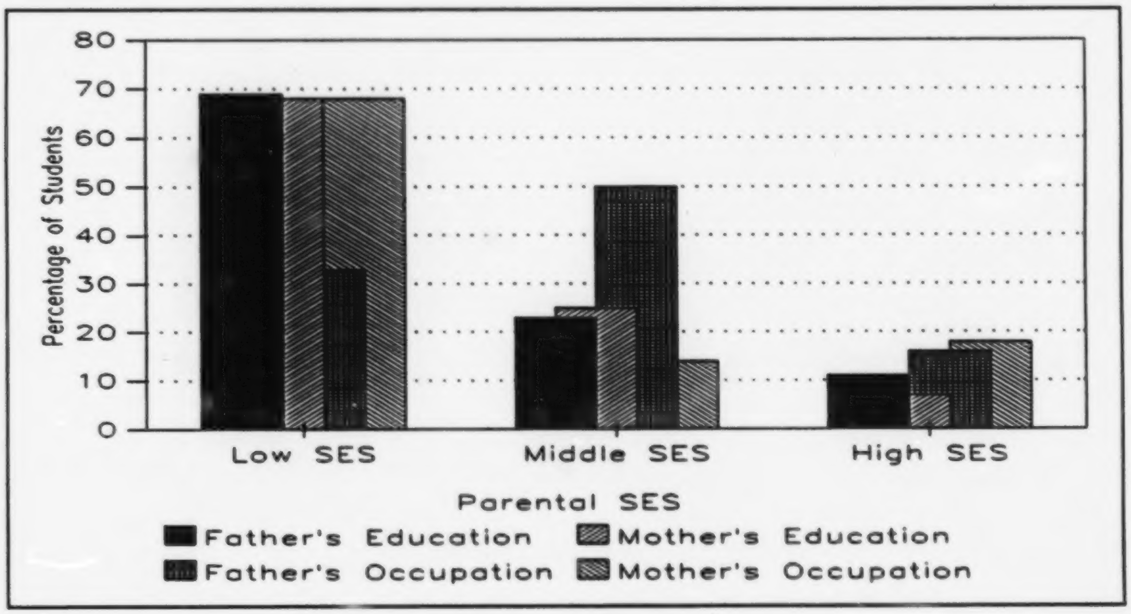


Figure B11 Academic Stream by High Parental SES

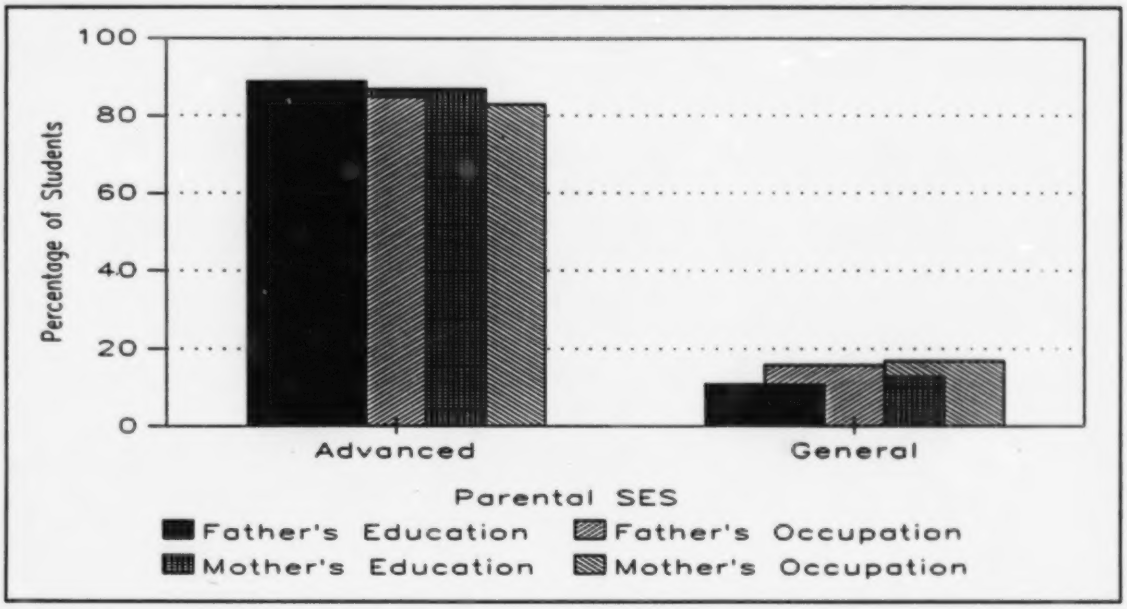


Figure B12 Source of Information for Courses and Education Levels

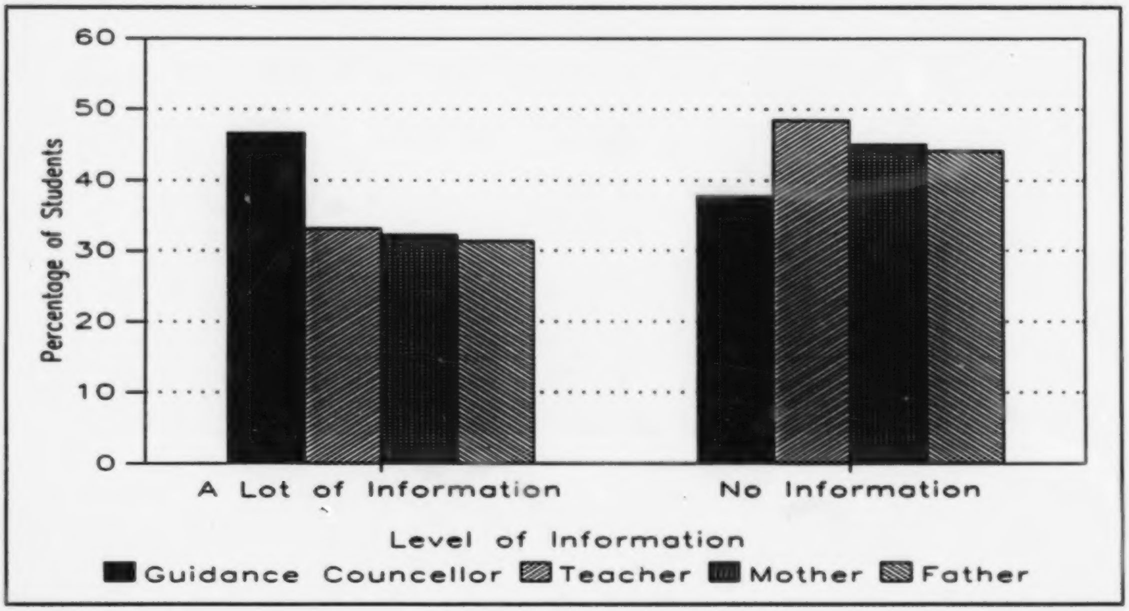


Figure B13 Source of Information for Occupational Interests by Grade

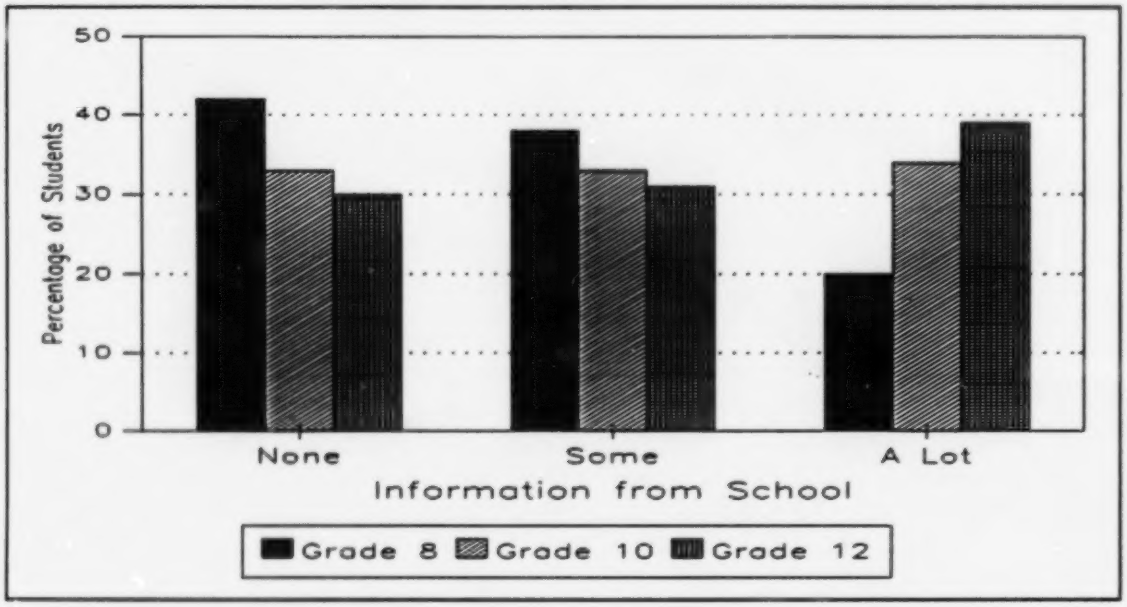


Figure B14 Information From Family by Grade

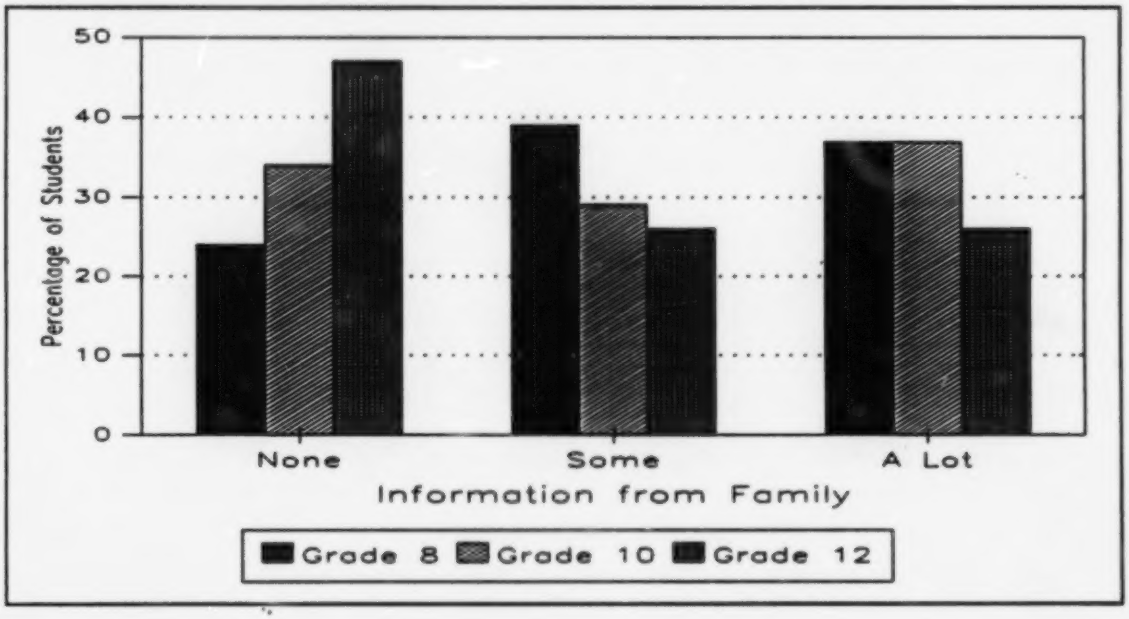


Figure B15 Amount of Information From Parents by Amount From School

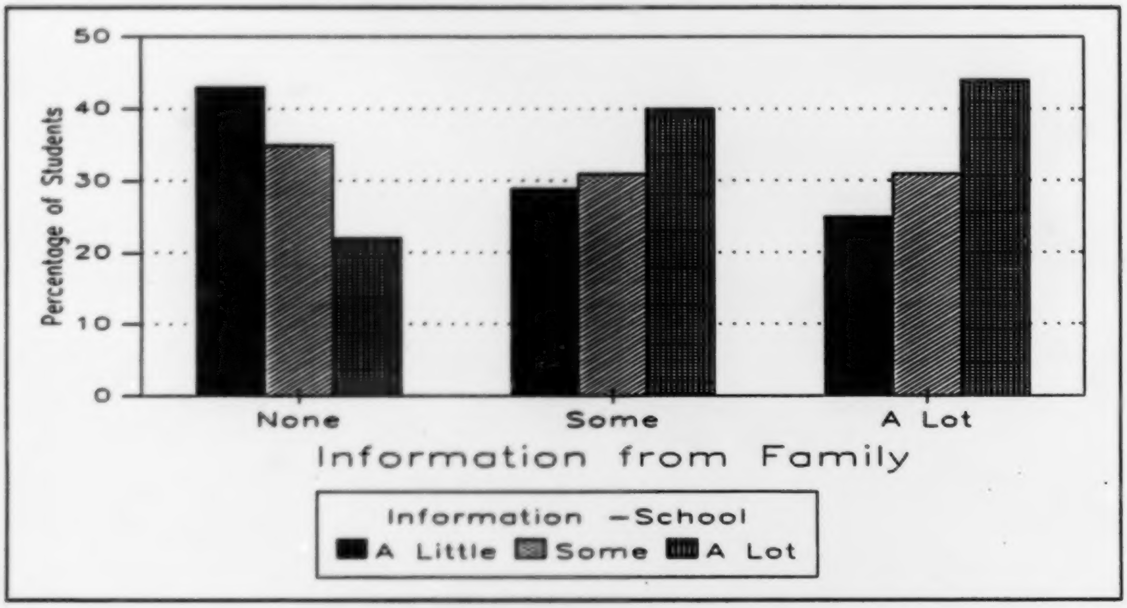


Figure B16 Knowledge Levels by Grade

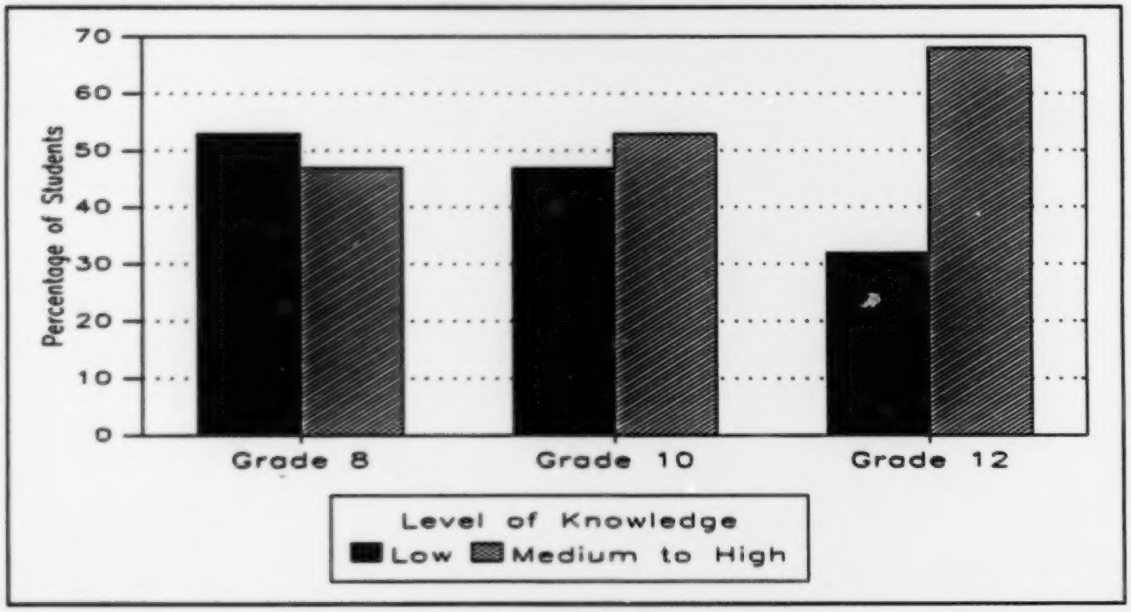


Figure B17 Knowledge of Technological Change by Grade

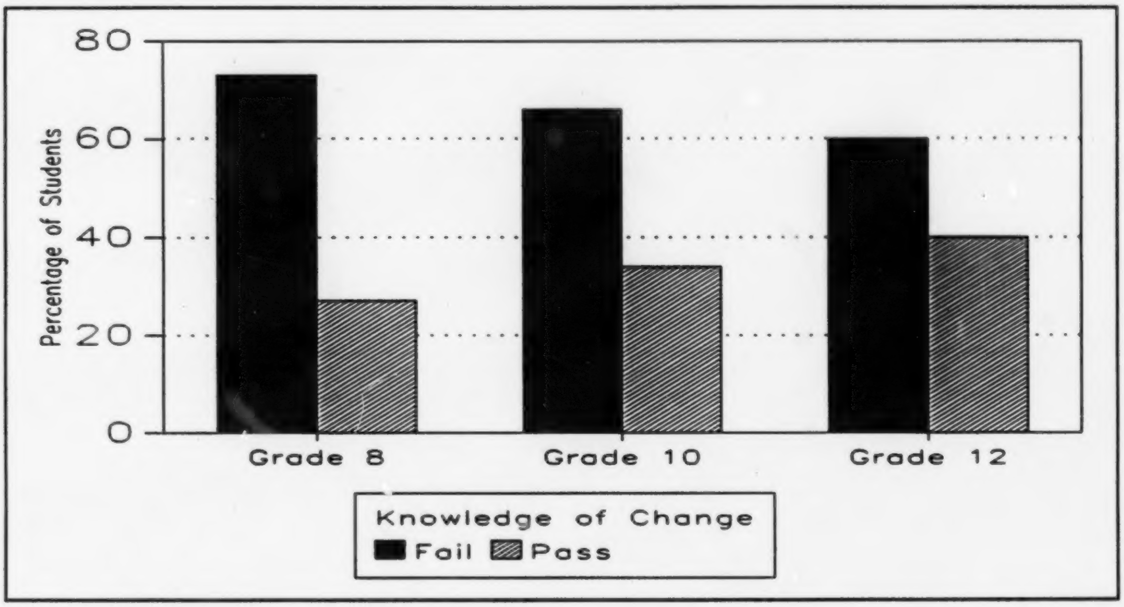


Figure B18 Percent Underestimating Req. Education by Level of Study/SES

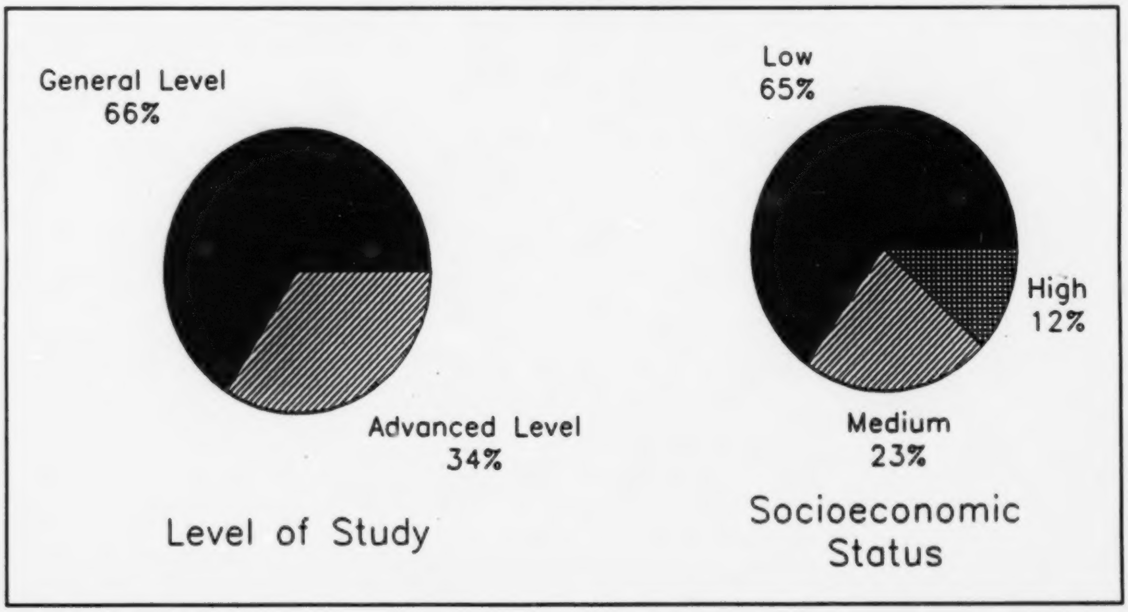


Figure B19 Percentage Underestimating Req. Education by Language Group/SES

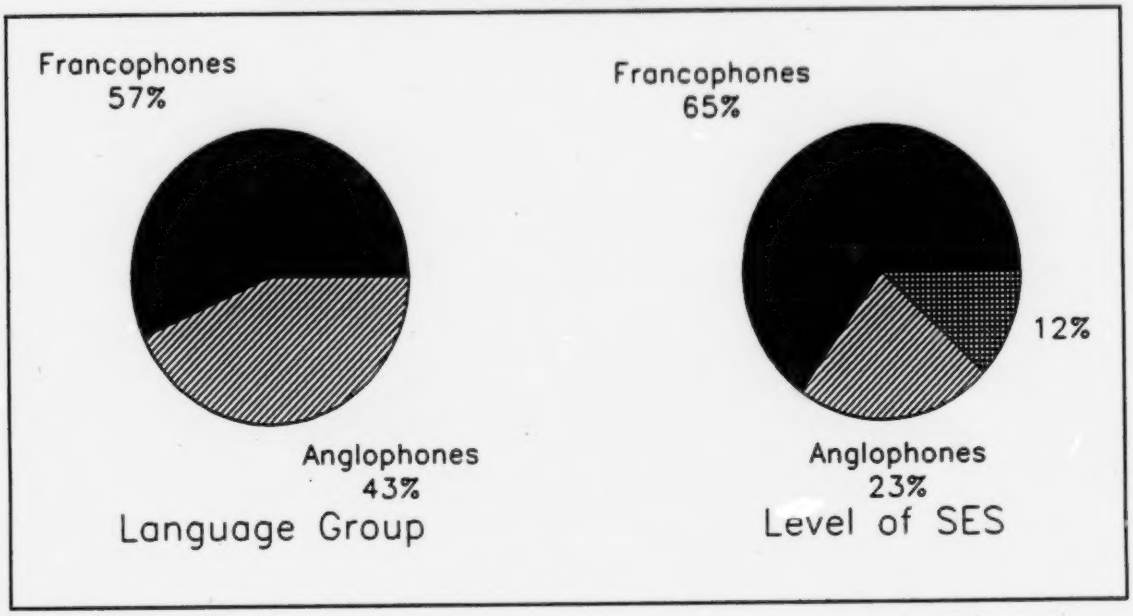


Table B1: Students' Views on What Schools Should be Teaching

	Number	Percentage
Social/ life skills	467	37
Job skills	314	25
Knowledge	251	20
Self motivation/ development	181	15
Thinking and theory	81	7
Preparation for post-secondary education	65	5
Theory and applied/well rounded	34	3

Table B2: Students' Educational Expectations by Gender, Socioeconomic Status, Grade, Family Structure, and Level of Study

		Expect to Attend University	Expect to Attend College
GENDER	Females	59	33
	Males	52	37
PARENTAL SES	High SES	80	17
	Medium SES	55	37
	Low SES	45	41
GRADE	Grade 8	74	20
	Grade 10	62	31
	Grade 12	39	47
FAMILY STRUCTURE	Intact	61	30
	Non-Intact	44	42
LEVEL OF STUDY	Advanced Level	76	21
	General Level	13	62